

COAL AGE

The World's Accepted Authority on Coal Mining

McGraw-Hill Publishing Company, Inc.

October 7, 1926

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Timken Bearings make mine cars most nearly frictionless, according to independent, authoritative, modern tests. On this one point then, Timkens prevent all possible wear, and save all possible lubricant.

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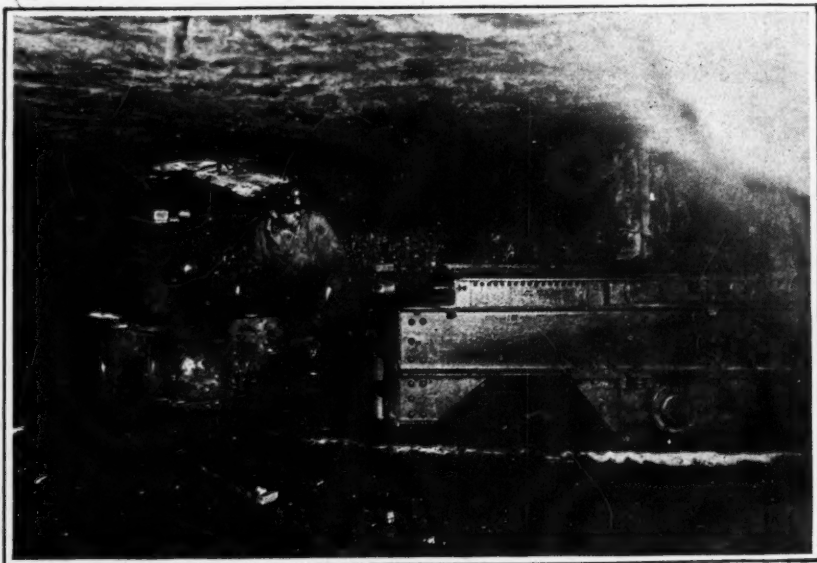
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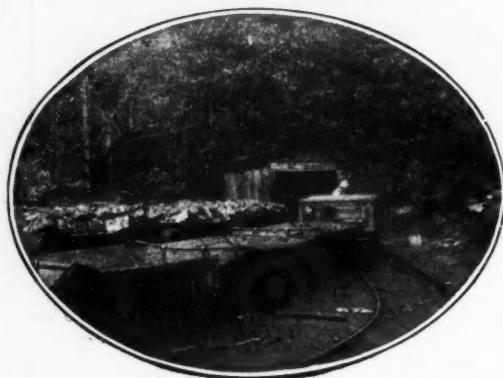
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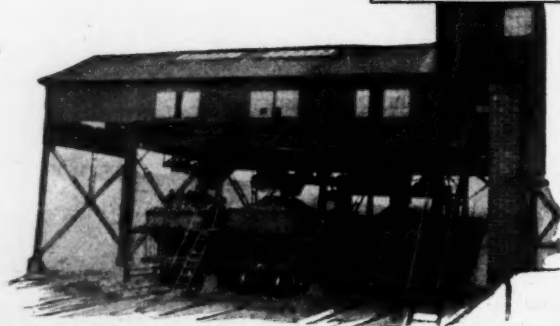
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They Thresh Out Their Problems

Many mining districts work under conditions that are more or less peculiar to themselves. In most instances, however, the conditions prevailing in any particular region are not markedly different from those encountered elsewhere. Thus, the problems confronting a mine or group of mines, in any locality are, by and large, the same as those encountered by other coal producers and their solution, although particularly interesting to those in the immediate vicinity, carries a general interest for all who are engaged in coal mining.

In next week's issue of *Coal Age*, J. H. Edwards will describe the meeting of a local coal-mining institute that was organized some years ago in eastern Kentucky. Although the topics discussed partook of a somewhat local color they were nevertheless subjects that are of interest to mining men everywhere.

Discussion Topics Reversed

It is always advantageous for men employed about the mines to get together and thresh out their difficulties. Real progress can be made in this way. When a meeting of this kind takes a topic of vital interest to all concerned and discusses it first from one angle, then exactly reverses the point of view and rediscusses it from the opposite angle, much good is accomplished. At this meeting one of the topics treated was, "How can the mine electrician perform his duties so as to be of greatest assistance to the operating department?" This question was then reversed and discussed from the angle, "How can the operating department be of greatest assistance to the electrical department?" This sort of discussion gives an excellent opportunity for each department to show the other its shortcomings. It is almost an answer to the wish expressed by the famous poet of Scotland:

"Oh, wad some power the giftie gie us
To see ourselves as ithers see us!"

Deming

MINE PUMPS

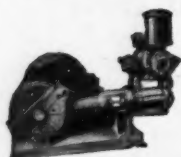


Fig. 817 Deming "Vitrox" Oil-Rite" especially adapted for acid water. Automatic lubrication.

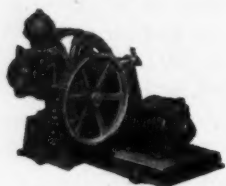


Fig. 609 Deming "Triumph" Double-Acting Piston Pump for medium service. All sizes and capacities.

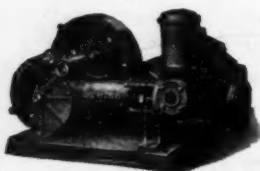


Fig. 896 Deming "Jupiter" Automatically Oiled Double-Acting Piston Pump. Accessibility and durability are features.



Fig. 70 Deming Portable Electric Triplex Pump. Requires a minimum amount of headroom.

NINETEEN hundred and twenty-six marks the 46th year of Deming Mine Pump manufacturing. What significance does this hold for you? Simply this: When you purchase a Deming Mine Pump you are purchasing the result of nearly a half century of practical experience in mine pump manufacturing.

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Deming Dependability is founded on *knowing how to build mine pumps* and *knowing how to sell them*. Call in the Deming Distributor in your territory. He's a good man to know. In the meantime send for our mine pump catalog.

Deming Mine Pumps are illustrated and explained in the Keystone Catalog, "Coal Edition."

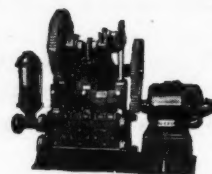
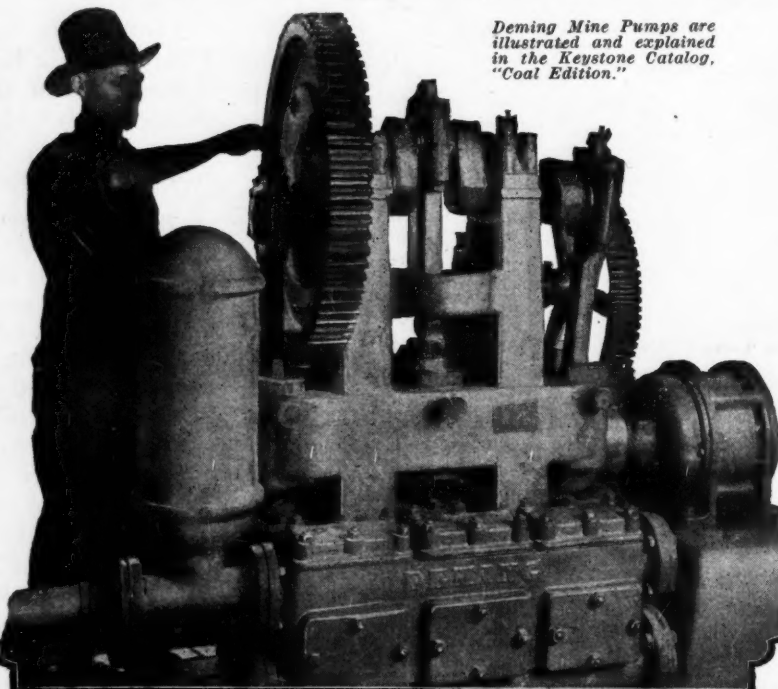


Fig. 50 Deming Triplex Power Pump. Built in capacities ranging from 300 gal. to 60,000 gal. per hour. Larger capacities on special order.



Fig. 73 Deming Stationary Triplex Plunger Pump especially designed for low headroom conditions.

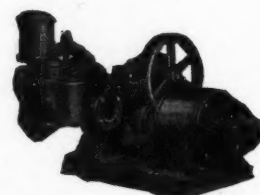


Fig. 696 Deming "Neptune" Double-Acting Piston Pump. An unusually accessible pump.

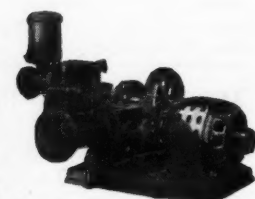


Fig. 716 Deming "Ajax" Double-Acting Piston Pump for medium service.

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COAL AGE

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PUBLISHING COMPANY, INC.
JAMES H. MCGRAW, *President*
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Devoted to the Operating, Technical and Business
Problems of the Coal-Mining Industry

R. DAWSON HALL
Engineering Editor

Volume 30

NEW YORK, OCTOBER 7, 1926

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Can't Afford It

A COAL COMPANY some time back felt that it couldn't afford to spend enough money to bring its coal to the tippie in the ordinary manner. It devised instead an extremely novel method of transporting its output, the character of which got much publicity. It was a clever scheme and received no little attention for that reason. But it was faulty, and in a few years it had cost the company a quarter of a million dollars. A change was made and once more economies were suggested and almost adopted that might well have cost dearly, but fortunately the company had learned its lesson. It could not afford to face a continuing loss again, so the necessary \$40,000 for good construction was forthcoming.

It is important for every company to estimate not only what certain installations and improvements will cost but what the omission of them will entail in a long course of years. It is merely good engineering to estimate the latter, but how often it is overlooked, and for lack of a little preliminary financing a perennial loss is sustained.

Yielding vs. Breaking

PROPS ARE INTENDED solely for the support of drawrock. Where this is of even thickness it is simple to find by actual experience what size of prop will hold it up. But where it is of irregular thickness the prop should be strong enough to support the thickest drawrock that may be encountered. Its size should not be related in any way to the depth of the mine. The shallowest operation often needs the heaviest props because all the roof above it is of a drawrock nature.

Where the roof does not swell, and where workings are not wide enough to bring much stress on the timber, there can be little harm, except for the economic loss, in making the timber excessively heavy. But where the roof swells in the presence of air, or places are driven wide enough to cause the roof to sag, a smaller post may be better suited to the conditions—one that will bend under these stresses, while yet holding up the drawrock. A collapsible steel post is, of course, better than a light wooden one, but so expensive as not to be desirable except where wood posts are frequently broken by pressure.

These collapsible posts could be replaced by wooden ones in some places as soon as the movement of the superincumbent material is completed. That motion rarely, however, can be regarded as coming to an end so long as coal is being extracted near the post. It may cease in old workings and in mines where the expansion of the roof under oxidation is the cause of pressure. The same cessation of movement may occur in cases of squeeze.

When a prop breaks it is no sign that a bigger one should have been used. The post may fail, and the

rock above it not come down. In that case the suggestion is not that the prop is of inadequate strength, but that it has opposed an excessive resistance to roof movement, and that a pointed post or a collapsible one should have been used that would have given way without breaking. In fact, more props and lighter ones that will enter the floor under pressure, or will "broom" or even bend a little under load, are desirable.

Where the bottom is soft, however, and the drawrock is heavy, it may be better to use fewer and larger props and distribute the load at their bases by the use of a footpiece. There is a degree of science in propping, but the best plan is to test the action of the roof by trial of timbering methods and a record of results with special reference to observable conditions.

It must always be remembered that a drawrock is a rock so free from the upper roof mass as to act independently of it. That freedom is often attained under stress, and when the force is acute the drawrock may comprise a much larger depth of strata than when it is less. That is why a breakrow has to be heavy. It has to hold up not only the ordinary drawrock, but the thick strata loosened as the result of partial collapse. If the drawrock in the mine roof is likened to the plaster on the ceiling it may be said that as plaster exfoliates more and more as pressure is put on the supporting joists so likewise drawrock loosens from the main roof as the strain increases, bringing greater and greater weight on the posts.

When to Make Friends

MANY OPERATORS regard their time as far too valuable to be spent giving interviews to newspaper men, and it must be confessed that nowadays most operating men between their technical duties and their contact with labor have about all they can do.

Yet the time to make friends is when one wants no favors but is in a position to grant them. Why wait till there is a strike or an explosion to get the goodwill of the daily press? On such occasions there is less time than ever to get in friendly accord with the newspaper editors and their reporters. At that time also they are in a suspicious, and perhaps angry, mood. The reporters have been shooed away from the door many times. Their feelings are lacerated, and they are disposed to tell a story that will inculcate the operator.

The time to give an interview is just when to give one seems least likely to be profitable. If the press wants it or will take it that is the hour of opportunity. To set the industry right with the public is never lost time. It is perhaps a waste of effort to try to mollify the yellow journals which persist in distorting facts, but there is no reason why every effort should not be made to correct the false impressions that years of calumny have created in the minds of ordinarily right-thinking men.

The industry has so long been held up to obloquy

that even broad-minded intelligent persons are no longer able to approach the subject fairly. By contact with representative men in the industry they will find that the ethics of the mining man is as high or higher than that of persons in other professions. It has been proved again and again that it is difficult for an individual to continue to hate the men he knows and some who have wished to maintain their prejudices have frequently expressed their determination not to meet those they condemn lest their animosity be tempered by knowledge.

Efficient Bearings Pay for Themselves

YEAR BY YEAR the conveyor is becoming ever more popular as a means of transporting coal or other granular bulk materials over comparatively short distances and up moderate inclines, or those not exceeding about 18 deg. In installations of this kind the belt itself represents a goodly portion of the total initial cost. Inasmuch as the wear on these expensive belts is roughly proportional to the power required for the drive, every reasonable means should be employed to render the power consumption as small as possible.

Few improvements made in conveyors of this kind during comparatively recent years have done more to lessen their power consumption than the adoption of anti-friction bearings. Not only have such bearings now been made extremely efficient so far as reducing friction is concerned but they are dust proof and durable as well. One company reports that one of its conveyors has carried over 1,500,000 tons of coal without any bearing repairs or replacements.

In addition to decreasing power consumption and wear on the belt, modern anti-friction bearings are easily accessible for lubrication. Furthermore a ball or roller bearing is so made as to hold a supply of grease sufficient for many weeks or even months. Thus, with certain types, it is necessary to lubricate bearings only at intervals of six months to a year. At least one grease maker has gone a step farther and developed a contrivance whereby a large number of bearings, connected by piping, are kept under constant pressure of lubricant from one point by a master, spring-actuated grease cup of large capacity. When the supply of lubricant in this pressure reservoir runs low it may be promptly and easily replenished.

Although anti-friction bearings cost more than plain ones the additional expense in most cases is fully justified by the results secured. Longer life of belts, less power consumption, lower maintenance cost, decreased lubrication expense and greater reliability are some of the savings that tend to offset the higher initial charges. Their combined effect is usually sufficient to warrant the purchase of the best bearings obtainable, especially if the conveyor upon which they are to be used is a long one.

Early Winter

WITH THE BRITISH strike continuing to transfer coal business to the United States, with American industry working at top speed, with stocks none too large and with the possibility of a strike next April come indications of an early Winter. All this does not spell a flurry, a kiting of prices, but promises just a little better return on investment, a more regular production and an easier condition. Both anthracite and bituminous coal will share in the auspicious future.

Saved from Five-Day Prison

NO LACK OF CONFIDENCE should have been felt as to the ultimate recovery of the forty-three men imprisoned in the G. Pabst iron mine at Ironwood, Mich. In a coal mine there is an absorption of oxygen and an emission of carbon dioxide and often methane also, making the air progressively irrespirable and extinctive. Immuring is therefore a greater hazard in coal mines than in metal mines.

With or without their bark tea the men doubtless would have survived. In most mines one would hesitate to undertake the risk of drinking the brew made from bark because of the possible presence of fungus germs except in the intake airway. One would hardly expect to find in that position timbers covered with bark, for the best practice is to peel all permanent timber before it is placed in the mine.

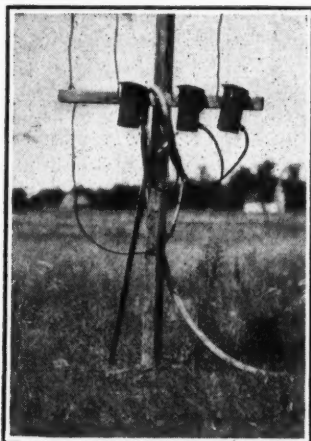
Test Them Out

MUCH DIFFERENCE in opinion appears to exist in the minds of mining men and engineers concerning the utility and safety of the auxiliary fans sometimes used in development work, and for want of a better name frequently referred to as "blowers." These machines should not be confused with those commonly known as boosters. They are much smaller and as a rule ventilate only one or two faces whereas the booster frequently handles the air for a whole split. As a rule also the blower delivers its air to the face to be ventilated by means of tubing either of canvas, fabric, sheet iron, wooden boxing or vitrified pipe, whereas air from a booster is usually guided on its course by ordinary brattices, stoppings and the like.

Those who oppose the use of blowers assert that the ventilation afforded by them may be defective in that they are liable to recirculate air that has already swept the face. Thus it is claimed that air that has been passed through the fan and been forced to the point where ventilation is most desired, upon finding its way back to the entry where the machine is located may be again sucked into the blower and sent on another tour of duty. The effect is thus not ventilation but air churning.

Those who favor the blower assert that it can be so stationed as to render this churning or recirculation of the air impossible. They advocate the placing of the fan on the main entry at a point some distance from the outlet of the passage whose face is to be ventilated. When the machine is so positioned they claim that it is impossible for recirculation of air to take place. They are emphatic in their statements that the blower fills a long-standing need in that it enables the driving of extended continuous passages without the necessity of frequent breakthroughs, and that it assures delivery of a large volume of air to the exact point where it is most needed.

It would seem, however, that much of this controversy is needless. It should be entirely possible, by means of air analyses, to test these machines out under various conditions and thus determine with certainty what may be expected from them. Such tests should not prove particularly difficult and the benefits to be derived from them in the shape of exact knowledge would be of great value not only to the engineers and coal producers performing the work but, if properly disseminated, to the entire industry.



Dragline Excavator Used To Make First Cut of Big Projected Stripping In Indiana



Box Cut Opened Along Invisible Outcrop—Machine Will Be Converted Later Into Stripping Shovel—Wide Berm Left for Deposition of Additional Spoil—Coal Will Be Given Careful Preparation for Market

By Frank H. Kneeland
Associate Editor, *Coal Age*
New York City

STRIPPING WILL doubtless always be a favorite method of producing coal wherever conditions favorable to its adoption can be found. Throughout the Middle West, particularly in the States of Illinois, Indiana and Ohio, where the beds have been gently folded into basins so that they dip slightly from the edges of the field toward the center, large areas are found where coal can be extracted economically by this method of mining. The advantages of total recovery, of working in the light of day, and without artificial ventilation, yet without the hazards of firedamp and falling roof, and the fact that economic stripping limits may be determined with a considerable degree of accuracy before work is started have induced many operators to adopt this method. The initial outlay is high, but if the work has been carefully and scientifically planned, the heavy expenditure which the purchase of stripping equipment involves is fully justified.

About 3½ miles east of the little town of Farmersburg, in Sullivan County, Indiana, the United Electric Coal Companies has two coal fields, each covering about 2,000 acres, which can be worked by stripping. At present, however, only one of these fields—that to the south—is being developed. The methods here employed differ somewhat from those hitherto adopted in the coal stripping regions of the United States.

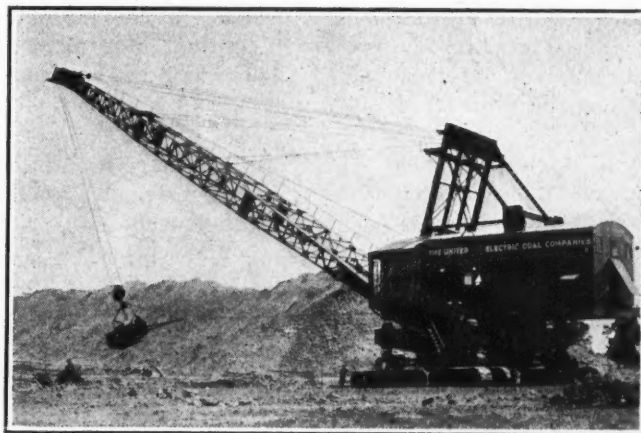
In this area the coal is being opened along its subterranean outcrop. After the field had been drilled to determine the thickness of the overburden and of the coal throughout a considerable area, it was close drilled

along the line where it disappeared so that the actual outcrop was determined with a fair degree of accuracy. The bed worked, which is the No. 7 of the Indiana series, is about 5½ ft. thick and lies almost level. Drilling determined, however, that the outcrop line on the companies' property is by no means straight, although it extends in a generally northeast and southwesterly direction. The first, or opening cut, was accordingly staked out in such a position that its center line would approximately coincide with the median line of the subterranean outcrop. Thus the center line of the box cut will approximately follow a line half way between points where the full thickness of the bed is attained and those where it tails out completely.

Throughout this field the cover above the coal ranges from 15 to 50 ft., both limits being approximate. The material overlying the coal consists chiefly of surface

soil and drift, clay, hardpan and some shale. This latter, which lies immediately above the coal varies from a thickness of 1 or 2 ft. to 10 or 12 ft., or even more in places. The greater part of the digging, however, must be done in the fine-grained and extremely gummy clay and surface soil.

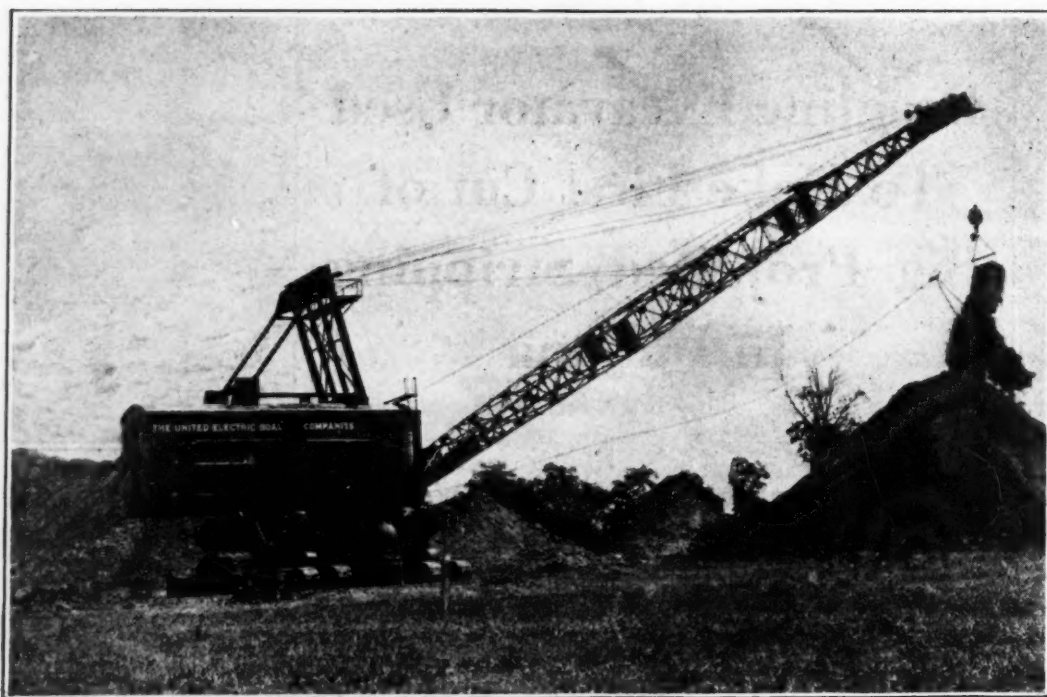
In opening a strip pit with heavy overburden, it is frequently difficult to pile the spoil a sufficient distance back from the cut. This difficulty increases with both the depth and the width of the excavation. At this operation, therefore, a drag-line excavator with a 6 cu.yd. bucket and an effective dumping radius of 150 ft. is being employed to make the first cut through the property. Naturally, this operates on the surface of the ground and can pile the spoil higher and farther away from the cut it makes than could a power shovel of the same weight. It leaves a wide berm between the toe of the spoil bank and the brink of the excavation.



Excavator Casting the Drag Bucket

It is entirely possible for this machine to dig beyond a vertical line dropped from the boom sheave to the ground. This is done by allowing the bucket to swing like a pendulum and then lowering it quickly at the outward extremity of its oscillation.

On the left in the headpiece is shown the switch boxes joining the overhead distribution system to the vulcanized-rubber insulated cable carrying current to the power shovel. In the illustration on the right the drag line bucket of the excavator is making a dip in the surface soil above the outcrop of the coal.



Dumping

This shows the dragline excavator discharging its scoopful of dirt onto the spoil heap 150 ft. horizontally from the center of the turntable. Even though this machine may make a cut 200 ft. wide and 30 ft. or more deep a berm of considerable width is left between the toe of the spoil bank and the brow of the excavation. This serves as a place whereon to dump the material dug by the power shovel from the bottom of this box cut and immediately overlying the coal.

This dragline excavator does not dig down to the coal. The width of the box cut ranges from 125 to 200 ft. and its depth from 15 to 35 ft. depending upon the nature of the material excavated and the width of the cut. On this property the total length of the box cut will be slightly over a mile, and as has been stated it will not follow a straight line nor will it be unbroken, inasmuch as a public road crosses the property and must be preserved. It is planned, however, to make this stripping one continuous pit when the property is fully developed.

This dragline excavator is a Marion, No. 360. In construction the lower and upper frames are identical with those of the power shovel of the same size. The machinery also is so designed that the excavator can be converted to a shovel by the substitution of the proper boom, dipper stick and actuating equipment and will be so converted upon completion of the present cut.

BIG SHOVELS WILL DO FINAL STRIPPING

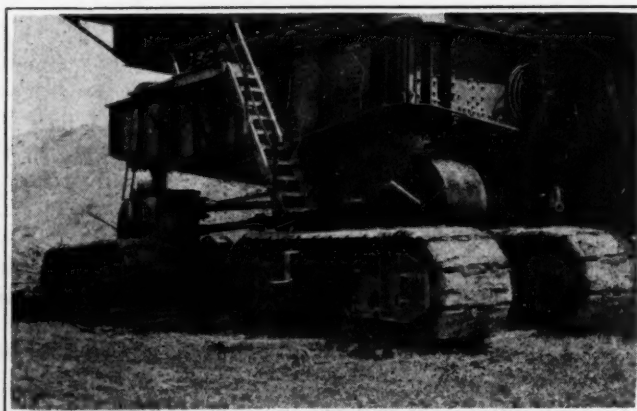
Eventually, therefore, this pit will be operated by two 8-cu.yd. stripping shovels, having a maximum dumping radius of 101 ft. Both will be electrically driven and both mounted on eight caterpillar treads, each slightly over 10 ft. long. These machines will be practically duplicates of the big electric stripper employed in this company's No. 4 pit at Cuba, Ill., a description of which appeared in *Coal Age* of Aug. 26 on page 275. In fact, the 8-cu.yd. power shovel at this mine in Illinois so thoroughly demonstrated its utility that when this operator concluded to open its No. 10 mine in Indiana, it ordered a stripping shovel that would be an exact duplicate of the one in Illinois and the dragline excavator just

described, which has a greater reach and lift than a power shovel, yet can be converted into a machine of that type by the substitution of the necessary parts, as has been stated. In completing the box cut, the stripping shovel follows the excavator, does the hard digging encountered immediately above the coal and deposits the spoil on the berm left by the dragline machine. On succeeding cuts, the spoil will be deposited in the space from which the coal has been removed.

SMALL SHOVELS WILL LOAD OUT THE COAL

When the coal has been uncovered and its surface properly cleaned it will be loaded out by two electrically driven shovels. Only one of these machines is at present on the property, but the other will be procured as soon as the need for it arises. These are comparatively small machines but are of ample capacity for loading the coal. Like the big strippers they are caterpillar mounted, and the only track necessary in the strip pit will be that for the locomotives and cars employed in hauling the coal away. This will be of 42-in. gage and the capacity of the cars will be from 5 to 6 tons each. They will be of wood construction, fitted with lifting end gates and will be discharged in a crossover dump.

The tipple in which coal from this stripping operation will be prepared is now under construction. It is a three track wooden building covered with corrugated iron. Much grading had to be done in order to bring the several tracks into this building and into the dump house at their proper elevations. The coal cars will be drawn out of the pit, switched to a "Y" and backed to the dump house. The loaded tracks above this building are on such a grade that the cars will pass through this structure by gravity. They



Caterpillar Treads Under the Excavator

Inasmuch as this machine weighs well over a million pounds the caterpillars are liable to sink somewhat when the machine is operating on soft ground. To prevent this, ties or timbers are laid as a mat over which the excavator may move with ease and safety.



In the Box Cut

Here the box cut has been completed down to the coal. Recent rains, however, have washed clay and dirt from the sides of the excavation onto the coal surface. Naturally this will require cleaning off before any of the coal is loaded out. The big shovel in the background has an 8-cu.yd. dipper and a reach of over 100 ft. In order to permit it to handle the "gummy muck" of the pit the dipper is given a slight reverse draft and is lined with an iron that is almost pure chemically and which consequently is highly rust resisting. Like a farmer's plow the dipper of this machine must "scour" if rapid, effective work is to be accomplished.

then go through a kickback and are shunted to the empty track where they are made up into trips ready to return to the mine. A locomotive, therefore, coming to the tippie with its trip of loads, backs it onto the loaded track, uncouples from it and proceeds by a switch to the empty track where it picks up a trip of empties and returns immediately to the strip pit.

ALL COAL WILL BE CAREFULLY PREPARED

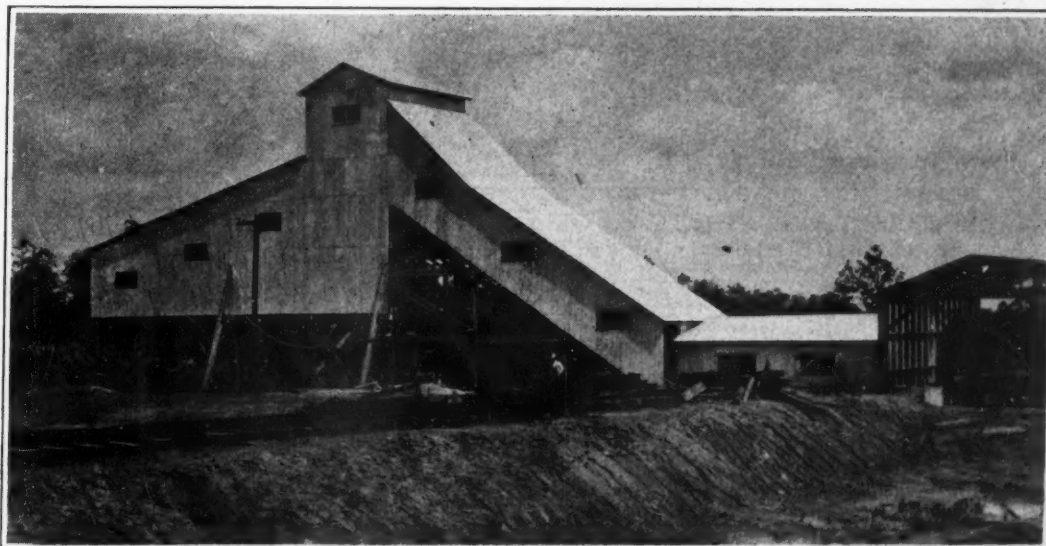
After being dumped, the coal is elevated to the tippie proper by means of an inclined conveyor by which it is discharged onto shaking screens, which separate it into three grades—lump, nut and slack, or screenings. By the substitution of plates or jackets carrying the desired perforations, the exact sizes of these various grades may be altered at will to suit existing market conditions. The two larger sizes will be hand-picked on apron picking belts, terminating in loading booms. They will thus be lowered to place gently and without undue degradation.

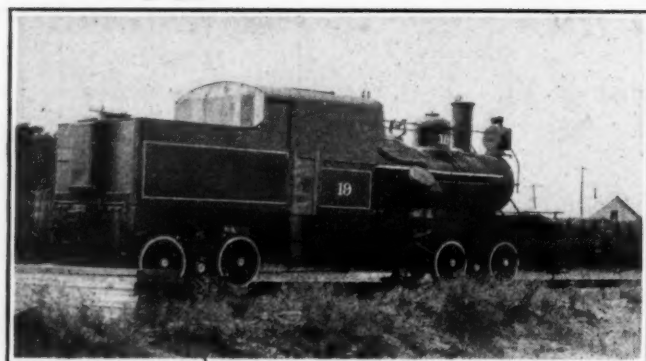
This tippie is served by a branch of the Chicago & Eastern Illinois R.R. The movement of railroad cars through it by gravity is in the opposite direction from the gravity movement of the pit cars through the adjoining dump house. Thus, the pit cars in being discharged move through the dump house from west to east and the railroad cars in being loaded pass through the tippie from east to west.

With the exception of the steam locomotives which will be employed in hauling the pit cars to and from the loading shovels, this coal development will be electrically operated throughout. Current is purchased from the Terre Haute, Indianapolis & Eastern Traction Co. It is transmitted at 33,000 volts and stepped down in the power company's substation to 4,400 volts, at which potential it enters the big stripping shovels, a three-conductor vulcanized-rubber insulated cable being employed for this purpose. For use in the loading shovels, however, this current will be stepped down to 440 volts. All tippie and other motors used about the plant are

Dumphouse and Tippie

This is the loaded side of both buildings. The dumphouse is on the extreme right and has not yet been covered with corrugated iron. A crossover dump will discharge the cars to a bin from which the coal will be taken by an inclined conveyor to the head of the shaker screens. Three grades of fuel—lump, egg and screenings—will be shipped.





Geared Steam Pit Locomotive

Heavy grades must be traversed in moving the pit cars to and from the tippie. Although perhaps somewhat more complicated than the ordinary machine the geared locomotive is a great puller and well adapted to hauling heavy loads. As here shown locomotive and tender form a single unit with its entire weight on the drivers.

of this latter potential, but lighting circuits, except those on the shovels themselves, are of 110 volts. Coal will be consumed at this plant only for the operation of locomotives and for heating the various mine buildings during cold weather.

Nothing has, as yet, been done with the field which lies a few miles north of this one. This, however, is being held in reserve and can be opened at any time that market conditions or necessity may demand.

The United Electric Coal Companies is doing some experimental work at this mine with the idea of ulti-

mately producing from this coal by low-temperature carbonization a high-carbon smokeless fuel suitable for domestic use. This process has not yet been developed to a commercial status but the results of experiments so far conducted have been highly encouraging, and a plant of commercial size may quite possibly be erected in the near future. A few byproducts will be recovered, but the chief object sought will be the evolution of a low-volatile coke, or char, suitable for use as a substitute for anthracite in domestic heating.

Wherever areas suited to stripping may be found, it is but natural that this means of coal production should be adopted in lieu of the better known and more widely practiced underground methods. Heretofore one great objection to strip-pit coal was the fact that it was frequently stained and consequently failed to present as pleasing an appearance when loaded on the car as fuel produced from further underground. Again, much of this material heretofore has been loaded either direct from the pit into railroad cars or has been inadequately prepared so that it consequently could demand only a low price when placed upon the market. When deeper coal is worked and is given careful and exacting preparation, as is the case at such plants as this, there is no reason why strip-pit coal should not be practically as good in every respect as that which comes from underground workings. If, in addition, such coal can be converted into a low-volatile char, it should be able to compete successfully with other smokeless fuels now entering the markets of the Middle West.

Best Gardens Receive Prizes

Some excellent gardens and yards were inspected by the judges in the New River Co.'s annual garden and yard contest which closed recently. Inaugurated by this company, the headquarters of which are at McDonald, W. Va., four years ago, these contests have proved an incentive to all employees to improve their home surroundings. Each year has seen a gradual improvement in the appearance of its mining towns until now many



Among the Dahlias, Cannas and Geraniums

Few flowers are easier of culture than dahlias. Although each plant requires a considerable ground space they are extremely effective in producing a profusion of bloom. The canna is chiefly valuable for its foliage and the geranium is always colorful.

of the yards will rival those of the finest country estates, although, of course, on a smaller scale.

In their report the judges credit Cranberry, Skelton and Sprague with the greatest improvement over the preceding year of any of the company's fifteen towns. Hundreds of homes in these communities received high percentages. Mrs. J. T. Hunt of Cranberry is credited with the largest variety of flowers. It is said that in



Healthful Surroundings for the Kiddies

Some people always think of miners houses as squalid hovels. This picture well illustrates what a lawn, a few seeds and a little care can accomplish toward making the miners home attractive.

her yard can be found every plant that can be raised in this climate. The garden cultivated by Alex McCormick, of Harvey, was said to be the finest in any of the towns and was accordingly adjudged the best.

During their inspection the garden and yard judges found few homes where some effort toward beautification had not been made. In these few cases, investigation shows that the homes were not occupied early in the year, the present tenants having moved in during the summer, too late for work in the yards.

In all, \$640 was distributed by the company. Prizes of \$15 and \$10 respectively were given for the best and second best garden in each town; \$10 and \$5 for the best and second best yards. Special but like prizes were given to officials, this class including all officers of the company regardless of the town in which they lived. In addition to those who won prizes more than 400 employees were given honorable mention for their efforts.

Is It Advantageous to Center Shear the Face?*

Pick Miner Sheared Face, Increasing Lump Production—Machine Shearing May Accomplish the Same Result or It May Not, Depending on Conditions

By John H. Emrick

Sullivan Machinery Co., Denver, Colo.

AT THE MEETINGS of the Rocky Mountain Coal Mining Institute held two years ago a comprehensive paper was presented on the subject of shearing coal. It contained data based upon actual test and experiment, and showed that where the shearing cuts were made and the tests conducted no advantage but rather a disadvantage resulted from shearing. In presenting my ideas on this general subject I do not mean to take issue with the author of the paper referred to but merely to report the advantages that have recently been secured from shearing the face. All of this goes to prove again the well-known fact that what the conditions in one mine will permit, those in another will not.

Years ago, when most of the coal produced was shot from the solid and when the pick miner's pay was based on the amount of lump coal he loaded out from his room, he frequently put a vertical cut in the face as deep as he could with his pick. This man was well acquainted with the peculiarities of the coal he mined and, no doubt, saw that his pocketbook would be fattened if he put forth the extra effort to make this vertical cut. Fortunately, he was well repaid, as was his employer also, on account of the greater percentage of lump produced.

Coal-cutting machines of various types were then introduced to help along the cause of lump coal and, since the natural way to shoot this material is downward, the machines were designed to undercut or undermine the face. The idea back of this undercut and also the vertical shear made by the pick miner was to relieve the coal so that a smaller force would suffice to break it loose. When it was shot with less powder it held together better and more lumps resulted.

Although the natural direction in which to shoot the coal is downward, there are other reasons for undercutting. Thus no distant cleavage line between the coal and the footwall may be discernible, yet the loader wants a smooth bottom or floor to shovel from. In most operations, therefore, it is considered advisable to undercut the coal.

But did you ever consider the results of a shearing in the center of the face and compare them with the results of undercutting? The following is a theoretical comparison. Consider a bed of coal 7 ft. high and a room 20 ft. wide. A 6-in. kerf undercut to a depth of 7 ft. would give a relief area at the bottom of 140 sq.ft. or 140 sq.ft. of relief for a block of coal contain-

ing 960 cu.ft. If, now, instead of being undercut, the coal were shorn in the middle of the face to a depth of 7 ft., the relief area would be 49 sq.ft., that is, 49 sq.ft. of relief for a block of coal containing 490 cu.ft. or one-half of the total quantity realized from one round of shots. It will be at once seen that the undercut provides a greater amount of relief for the same quantity of coal to be brought down than does the shearing cut.

FOR VARIOUS reasons machine cutting is usually made at the bottom of the coal bed. Under certain conditions, however, particularly in narrow work, the kerf may well be made in the center of the face. Wherever conditions will permit of its being used a shear cut in conjunction with an undercut results in an increased production of lump coal. The fact that shearing is successful in some mines is ground for the hope that it will prove advantageous elsewhere.

Now let us consider an entry in the same 7-ft. bed, such an entry being 12 ft. wide. The undercut will provide a relief area of 84 sq.ft. for a block of coal containing 588 cu.ft. The center shear will provide a relief area of 49 sq.ft. for a block containing 294 cu.ft. These figures demonstrate that in this case each cubic foot of coal to be shot will have more relief with a center shearing cut alone than it would have with an undercut alone. In addition, a little over one-half as much cutting is required for the center shear as for the undercut. Consequently, much less bug dust is made. I do

not believe, however, that this method would always be practicable unless a distinct cleavage line exists between the coal and the bottom, thus permitting the coal to part easily from the floor rock.

In at least two mines where this plan has been put into effect the results have been highly satisfactory. In one, compared with solid shooting, the powder required was reduced to one-half the usual amount and the quantity of coal secured was doubled. Although accurate measurements were not taken, the increase in the percentage of lump coal was appreciable. In the other mine, the following results obtain: Reduction of slack, 12 per cent; reduction in quantity of explosives used, 25 per cent; increase in speed of driving entry, 50 per cent.

SHEARING REDUCES EXPLOSIVE NEEDED

Although this use of a shearing cut can be employed advantageously in many cases, giving excellent results, it is more common for one to think of shearing coal in connection with undercutting it. The principal advantages derivable in such a case are a reduction in the number of shots employed and in the amount of powder used in each. This quite naturally results in a greater percentage of lump coal and in a corresponding reduction in the percentage of fines; also in a better preparation of the coal after it has been shot, for loading. In Colorado, the increase in lump realized in some ten or a dozen mines where the coal is shorn as well as undercut ranges from 8 to 15 per cent over that secured in the same mines with an undercut alone. In

*From a paper entitled "Shearing Coal" presented before the meeting of the Rocky Mountain Coal Mining Institute, held at Glenwood Springs, Colo., Sept. 9 to 11, 1926.

a west Kentucky mine, the following results were secured:

	Without Shear	With Shear
Prime 6-in. lump	19 per cent	38 per cent
6-in. x 3-in.	30 per cent	18 per cent
3-in. x 1½-in.	17 per cent	15 per cent
1½-in. and under	34 per cent	29 per cent

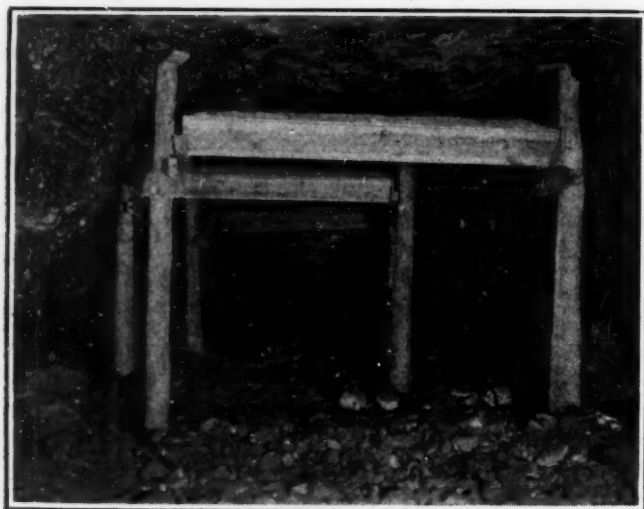
It will be noted that an increase amounting to 19 per cent was realized in the 6-in. lump coal and a decrease secured in all the smaller sizes, including fines and slack. This made a difference in the value of the mine output amounting to considerably more than the cost of shearing.

After undercutting and shearing, with proper shooting more lump coal can be obtained and at the same time the entire face loosened up so that a loading machine can be operated effectively. In order to enable a machine of this kind and of the average type to load the coal from the face, it must be thoroughly loosened up and not partly shot down with a portion left hanging to the solid. It has been found that the capacity of mechanical loading machines has been increased 25 to 30 per cent when working in a pile of coal that has been well shot out after having been shorn and undermined. In addition, the cost of repairs to such machines has been materially reduced on account of the lessened effort put forth by them because the coal is thrown out from the face and left in good shape for machine loading.

MINER'S BACK IS SAVED TOO

It follows, then, that if the capacity of a mechanical loader can thus be raised, the capacity of the human loader, the miner, can be likewise increased because of the better preparation of the coal for handling, the elimination of the necessity of using a pick, and the saving in time devoted to the deadwork of setting timbers.

The coal industry is making great strides in mining methods. Many different schemes for reducing costs and bettering preparation are being devised. All have been given careful thought and consideration in their conception and most of them seem to be sound from



Rocker-Type Rock-Dust Troughs

These rocker troughs are installed at the so-called dead end of the second panel entry of the New Orient mine. Together they hold from 700 to 800 lb. of rock dust. At each end of this trough are two rockers. One of these is fastened to the end of the trough and rides on the other, which is nailed to a supporting post. The rockers are curved to a 4½-in. radius, and each is flattened a little to form the seat of the upper upon the lower. A chain at each end will arrest the movement of the trough horizontally and will cause the latter to tilt when hit by the force of an explosion.

a mechanical standpoint. The application of any one of these same schemes to any particular mine, however, requires even more careful consideration than its invention, because its success or failure depends almost wholly upon local conditions.

So it is with shearing coal. It would be ridiculous to assume that just because the plan worked well in one mine it is bound to be a success in all others. Nevertheless, a plan that operates successfully in one mine is a cause for encouragement. It also forms just ground for faith in the idea involved, at least until its merit can be investigated. It may quite possibly be successful in securing economical results in the mine and under the conditions at hand.

Paxton Mine Is Sealed

As the result of a recent gas explosion that fatally burned Hud Watson, pumpman, both shafts giving access to the Paxton mine of the T. C. Kellar Coal Co., at Paxton, Ind., have been sealed. This operation had been shut down for years. During this period of

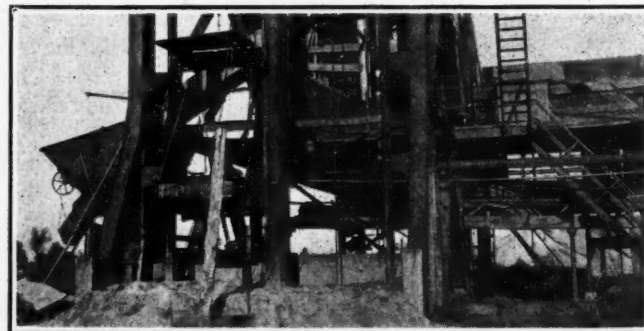


Engine House and Fan Casing

While the mine was shut down this fan was driven for a few hours each day by a motor that was belted to its shaft. The last time this machine was started an explosion followed, apparently at once.

inactivity, a motor, belted to the fan shaft, was used to drive this ventilator in place of the regular steam engine.

For some time prior to the explosion it had been the custom of the pumper once a day to start the fan and after waiting about an hour, to go down the manway and start the pump at the foot of the main shaft. To all appearances the last time he started the fan the explosion followed almost instantly, or while he was yet at the starter. The location of the belt pulley and motor with respect to the fan and its housing may be seen in one of the accompanying illustrations. The other picture shows the top of a sealed shaft.



Collar of Main Shaft

This shows the seal. The openings of both shafts have been covered over, effectively excluding the air from the mine.

Why New Orient Favors Slow-Speed Locomotives

High- and Low-Speed Machines Tested by Disinterested Engineers—Work Done Was Practically Identical—
Slow-Speed Machine Yielded Much the Best Results

By J. H. Edwards

Associate Editor, *Coal Age*,
Huntington, W. Va.

ON PAGE 363 of the Sept. 9 issue of *Coal Age* brief mention was made of a test conducted at the New Orient mine, which indicated the superiority of slow-speed gathering locomotives over high-speed machines. In view of the rather startling results, namely, that a locomotive that could travel only 3½ miles per hour, gathered practically the same number of

cars as one with a speed of 6.9 miles per hour, with 37½ per cent less energy input and with one-half the 5-minute demand, the conditions of the test will be here

Summary of Test Results

	Average of Two One-Day Tests with Low-Speed Locomotive Weighing 17,670 Lb.	Average of Two One-Day Tests with High-Speed Locomotive Weighing 17,900 Lb.
Number of round trips per day.....	10.5	11
Cars gathered.....	77	77.5
Coal gathered, tons.....	334.5	326
Total tonnage gathered, including car weights.....	479	471
Cars distributed.....	76.5	77
Tonnage distributed (total weight of empties).....	143.5	144.5
Total tonnage handled.....	622	615.5
Total kw.-hr. consumed.....	71.4	113.1
Total amp.-hr. consumed.....	303.5	507
Average voltage.....	235	230.5
Kw.-hr. per ton of coal.....	0.213	0.346
Kw.-hr. per ton handled (including cars).....	0.115	0.184
Total working time, minutes (7:30 a.m. to 4 p.m.).....	510	510
Actual time gathering trips, minutes.....	319	316
Distance traveled, miles.....	16.6	17
Average speed, miles per hour.....	3	2.9
Watt-hours per gross ton mile.....	63.6	103.8

outlined and the complete results given.

This test was conducted jointly by A. E. Giles, chief electrician of the coal company, and W. E. McDougale of the General Electric Co. Neither had any contention to prove, but instead both were seeking the unbiased facts. An average working condition was selected and data recorded during four successive days of regular work.

The two 8-ton locomotives used were almost identical; the only important difference was that one had slow-speed and the other high-speed motor windings.

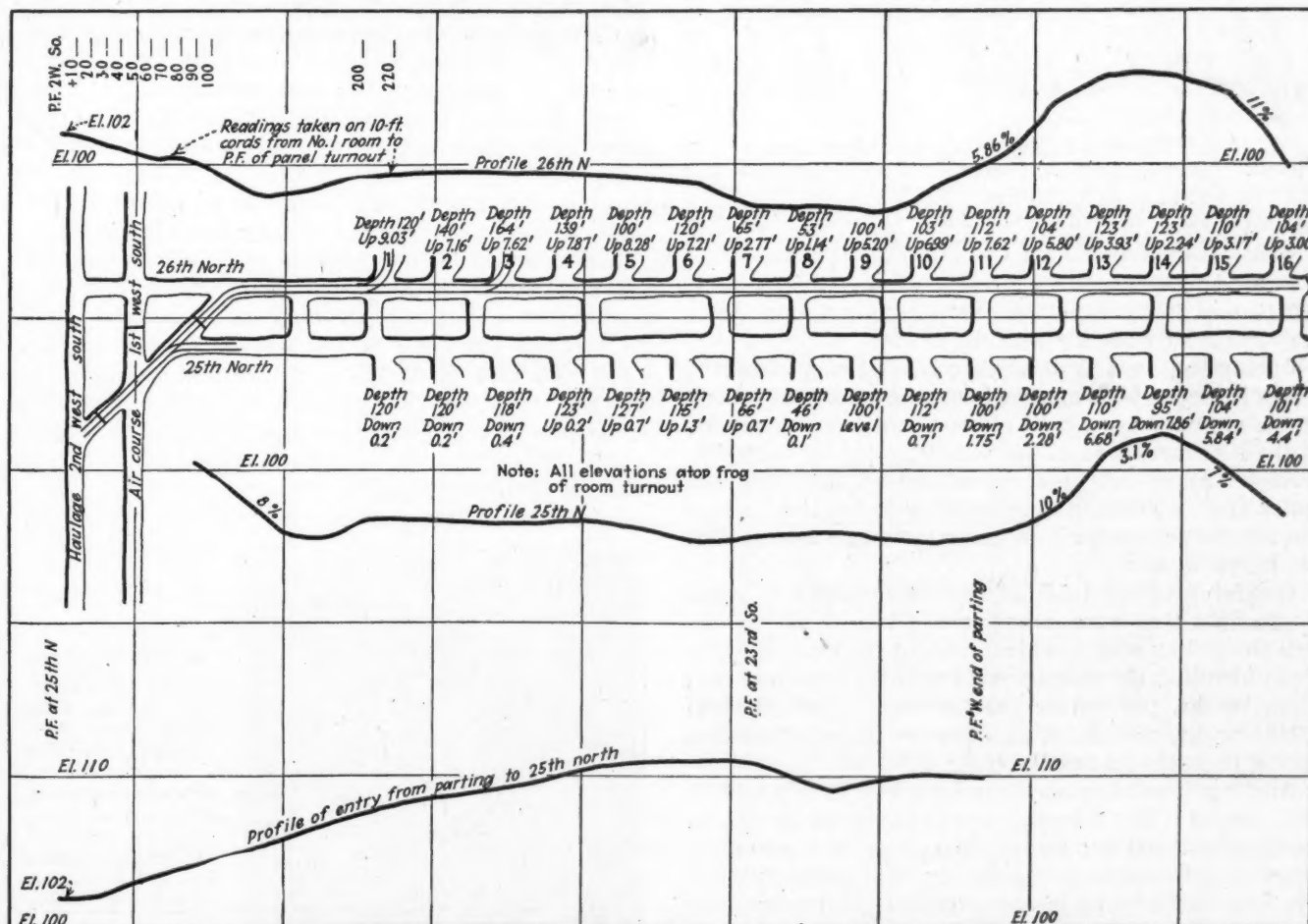


Fig. 1—Plan and Profile of the Rooms, Headings and Entries Where Tests Were Made

Tests of both gatherers were made over the same ground so that their performance might be strictly comparable. Although the

traversing speed of one machine was practically double that of the other, the slow-moving locomotive did as much work as its

swifter rival. It also gave far better results both in power consumption and maximum demand.

These machines were each used for two days in a territory consisting of 16 rooms on each one of a pair of 800-ft. panel entries. The haul from these entries to the side track or parting was approximately 1,000 ft. The rooms varied in depth from 46 to 164 ft., the average being 107 ft.

The grades in the rooms of one entry varied from 1 per cent in favor of the loads to 8.3 per cent against them. In the entry itself the grade ranged from 10 per cent in favor of, to 8 per cent against the loads. In the rooms off the other entry the grades were all in favor of the load and varied from 2.3 to 8.3 per cent. From the panel entries to the parting the first 300 ft. was on a 2.9 per cent grade against the load, the next

gathering locomotives are now of the slow-speed type. Experience with these machines has proved that the repair cost, especially that necessary to the mechanical parts, is much less than on the locomotives of the high-speed type.

Prevents Heating of Armature Bands

On small and medium sized armatures it is quite general practice to retain the coils in the slots by steel wire bands wound around the outside of the core. After the bands have been put in place, the turns of wire are soldered together to form what amounts to short sections of cylinders around the armature.

According to *Power*, what is not generally appreciated by the average electrical worker is that these bands are conductors on the surface of the armature core, to which the same laws apply as to the conductors in the slots. The section of a band that is under a north pole will have a voltage generated in it in a direction parallel to the armature shaft, when the armature is revolving, and the section under the south pole will have a voltage generated in it in an opposite direction. Since these two sections are both on the same band, they form a short-circuited coil in which a current can circulate. If the bands are made too wide, the current induced in them may be high enough to cause sufficient heating to melt the solder and release the bands.

LOCATION OF CLIPS IMPORTANT

Another cause of heating is the use of too many copper clips or the improper location of the clips. The bands are usually insulated from the core with thin mica, and thin strips of copper are placed under and at right angles to the bands as they are wound in place. The ends of these strips are bent up over the band and soldered in place with the rest of the band. If the copper strips, or clips, as they are usually called, are placed one pole space apart, the voltage generated in them will have the same relation as in two sides of the coils, and the current circulating in these clips may suffice to produce excessive heat and melt the solder.

In the larger size machines it is best to use one clip for each pair of poles, as this allows spacing them so that they will always be on the poles of the same polarity and will therefore have a voltage induced in them in the same direction. This will prevent circulation of current from one clip to another through the band. If the bands are made narrow and the clips are properly spaced and used sparingly, there should be no trouble from excessive heating of bands.

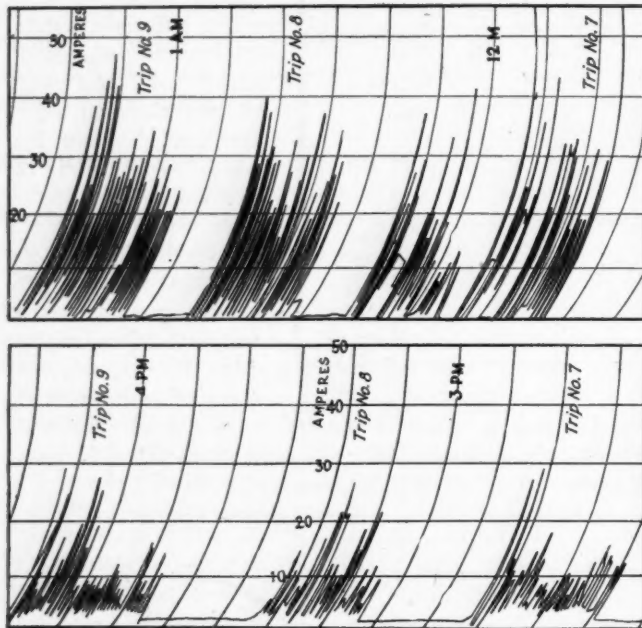


Fig. 2—Charts Drawn by Graphic Ammeter

Both of these graphs were drawn by the same instrument and both are typical of those made throughout the entire four-day test. The upper chart shows the demand and consumption of the high-speed locomotive and the lower one that of the slow-speed machine. The slower-moving unit did the same amount of work as its faster rival but with a much smaller demand.

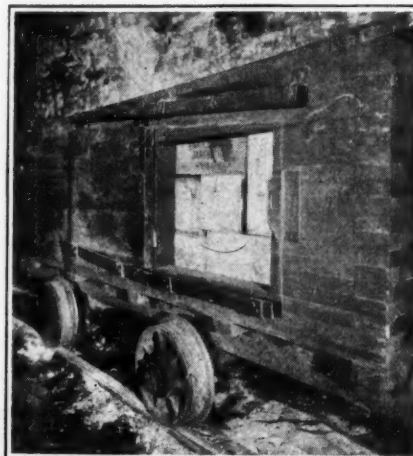
100 ft. was fairly level, and excepting for a small swag the remainder had only a slight grade.

During the days that each locomotive was gathering it was equipped with ampere-hour and watt-hour meters of the mercury type, both instruments being connected in the fuse circuit so as not to be affected by the shifts from trolley to cable-reel operation. A recording ammeter and a voltmeter were installed in the line feeding the territory as a check on the instruments mounted on the locomotive.

Referring to the table of results, attention is called to the fact that approximately the same coal tonnage was handled by each machine in about the same working time; also that the slow-speed locomotive consumed only 0.213 kw.-hr. per ton of coal handled as compared to 0.346 kw.-hr. for the high-speed machine. This is a saving in power amounting to 38.4 per cent.

Another item of importance set forth in this table is the demand. The comparison was indicated by the instantaneous current values plotted by the recording ammeter. From these charts Mr. Giles estimates that the 5-minute demand is approximately 50 per cent less for the low-speed locomotive than for the high-speed machine.

As a result of the test, 15 of New Orient's 31



Powder Car at New Orient

This car, built by the Chicago, Wilmington & Franklin Coal Co., opens like a box car with a door at the side and is built of wood with only occasionally iron parts, none of which carries through the car from end to end.

Occurrence of Methane Follows No Particular Law*

Mine Air Sampled by Displacement and Chemically Analyzed—Records Extending Over Long Periods Kept—No Law Established or Rule Found Governing Gas Efflux

By Frank Haas

Consulting Engineer, Consolidation Coal Co., Fairmont, W. Va.

MANY ARTICLES have appeared from time to time on fire damp and little is left unsaid in regard to its physical properties. Practically nothing, however, has been written in regard to its occurrence or fluctuation in quantity in an ordinary mine. The "when, where and how much" of gas forms the subject matter of this paper, which will delineate briefly the methods used and some of the results obtained by the Consolidation Coal Co. in certain of its mines in the Appalachian field.

After the Monongah explosion, which occurred in 1907 with the loss of 361 lives, the operating organization of the company was instructed to devise a method by which such catastrophes could be prevented. Although the cause of this particular explosion was attributed to coal dust the suspicion remained among those who were acquainted with the mine that fire damp had some part and was probably the initial cause, even though there was no doubt that coal dust was the propagating and destructive agent.

The investigation was begun by a review of the literature on the subject, supplemented by inspections of mines where similar conditions prevailed and, finally, by a visit to the principal coal fields of Europe, all with the view of establishing some system by which gas could be more easily detected and controlled. The results of this particular study were disappointing. It was found that no means were available in practice for determining the presence and quantity of gas in the mine atmosphere other than the time-honored safety lamp in the hands of the fireboss, with some variations in the rules and regulations governing his inspections and reports.

Pending the development of a better method it was decided to standardize and perfect the duties of the fireboss and the reports based on his observations. The bosses who were then in service were closely examined, various lamps were experimented with and both lamps and individuals tested under known conditions. Without recounting the many conflicting results that were encountered the conclusion reached was that a fireboss could detect the presence of gas, but his estimate of its quantity was not even an approximation. It was plain that while the services of firebosses were indispensable there was need of additional information

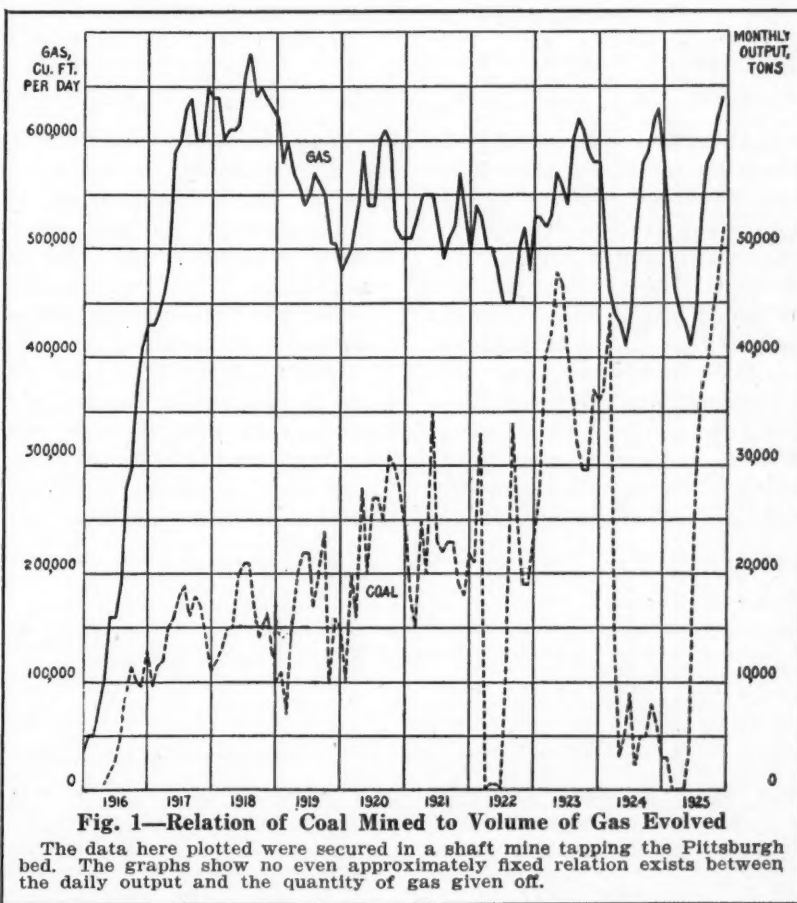
by which the quantity of gas present could be estimated with some precision in order to determine its variation from time to time.

After considering all methods known at that time a chemical process was adopted. The two principles upon which this process depends are, first, that in a closed receptacle, in the presence of excess air, methane can be completely burned by means of a hot platinum wire to carbon dioxide and water, and, second, that barium hydrate will completely absorb carbon dioxide.

The samples of mine air are taken by water displacement in copper cylinders 4 in. in diameter and 12 in. long with conical ends

to each of which is fitted a stopcock. In taking the samples the can, which is full of water, is held vertically at the point where the air is to be tested and both stopcocks opened. When the water has been completely drained the stopcocks are closed and the can is taken to the laboratory.

In the laboratory a definite volume (350 c.c.) is transferred to an Erlenmeyer flask. When this is filled with mine air a two-holed stopper, with the holes filled by glass plugs, is fitted into its neck. Ten cubic centimeters of barium hydrate solution, of known strength, colored with phenolphthalein, is introduced into the flask



*From a paper entitled "The Occurrence of Fire Damp in Bituminous Coal Mines," to be presented before a meeting of the American Institute of Mining and Metallurgical Engineers in Pittsburgh, Pa., Oct. 5 to 9, 1926.

by removal of one of the glass plugs and the insertion of a pipette. Shaking the flask periodically for 10 min. the excess barium hydrate is titrated with a standard solution of oxalic acid. The result is a factor of the carbon dioxide in the sample.

A second flask of the same size is then filled from the same sample. The stopper closing this flask is fitted with two copper wires with platinum terminals and these are connected with a small platinum wire (30 gage). A current of about 5½ amp. heats the wire to a bright red, which causes the methane to burn to carbon dioxide and water. To prevent trouble due to expansion, the flask stands under water during this reaction. Combustion is complete in about 10 min. This sample is now treated with barium hydrate in the same manner as the first sample and the excess titrated with oxalic acid. The result of this test is a factor of the sum of the carbon dioxide originally contained by the mine air plus that due to oxidation of the methane present. The difference is the factor representing the methane. The solutions are made up so that 1 c.c. is equivalent to 0.1 per cent of carbon dioxide or methane. The oxalic acid solution is very stable. The barium hydrate solution is standardized each day.

To carry out this work certain individuals are selected who have a general knowledge of coal mining. After they are thoroughly drilled in the principles and practice of ventilation they are given a course in the laboratory. They are then known as gas inspectors and are given certain mines or groups of mines for active duty. These inspectors are frequently interchanged, partly as a check on the work, but more particularly in order to have the entire force

familiar with all the mines. These gas inspectors are also first-aid men and are thoroughly familiar with, and capable of working with, helmets. They are subject to first call in case of explosion, mine fire or other accident.

The frequency of taking samples is determined by the working force available. After the first survey, mines which showed only traces of gas were sampled monthly, others containing appreciable quantities were sampled weekly and those which showed the greatest volumes of gas were sampled daily.

The gas inspector on starting on his daily routine carries an anemometer, a hygrometer and sufficient sample cans for the day's work. Eight cans are about all he can conveniently handle. His station for measuring velocity is constant over long periods and is of known cross-section. He takes one-minute readings with the anemometer while moving uniformly across the section. A sample of mine air is also taken at this point, which is usually the end of a split. No difficulty is encountered in getting an average sample as it appears that the gas is thoroughly mixed with the air by the time the ventilating current reaches the end of the split. There are, of course, frequent occasions for taking special samples such as determining the elevation of the

explosive gas in the gobs or at intervals within a split. In fact, endless combinations suggest themselves, but the samples taken are limited by the time available after the regular routine work is done.

The object of frequent determinations of methane is primarily to ascertain how much of this gas is evolved, also to establish the relative volumes in the various sections with a view to supply-

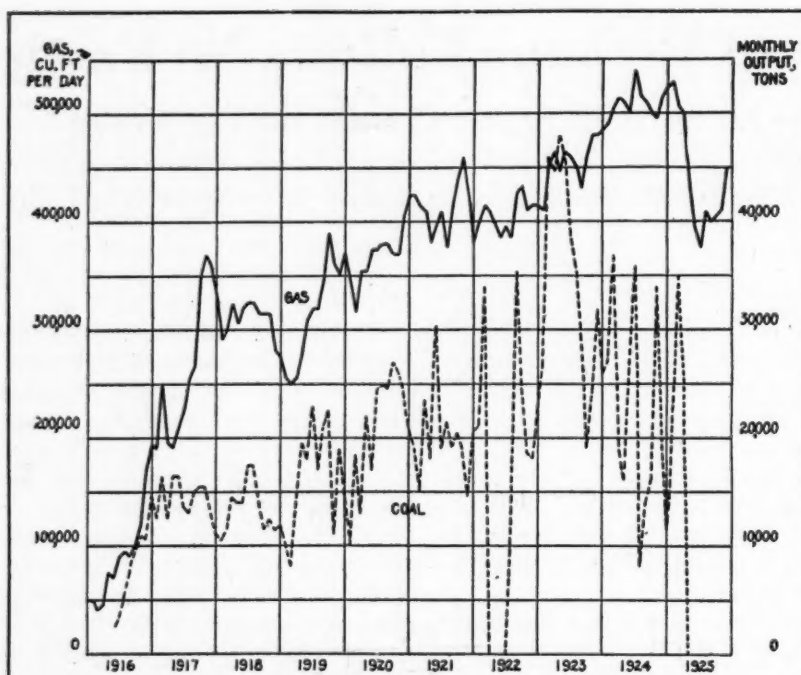


Fig. 2—Output and Gas Evolved in Another Mine

Physical conditions in this mine were practically identical with those encountered in the operation depicted in Fig. 1. Again no fixed relation is apparent between output and gas evolved.

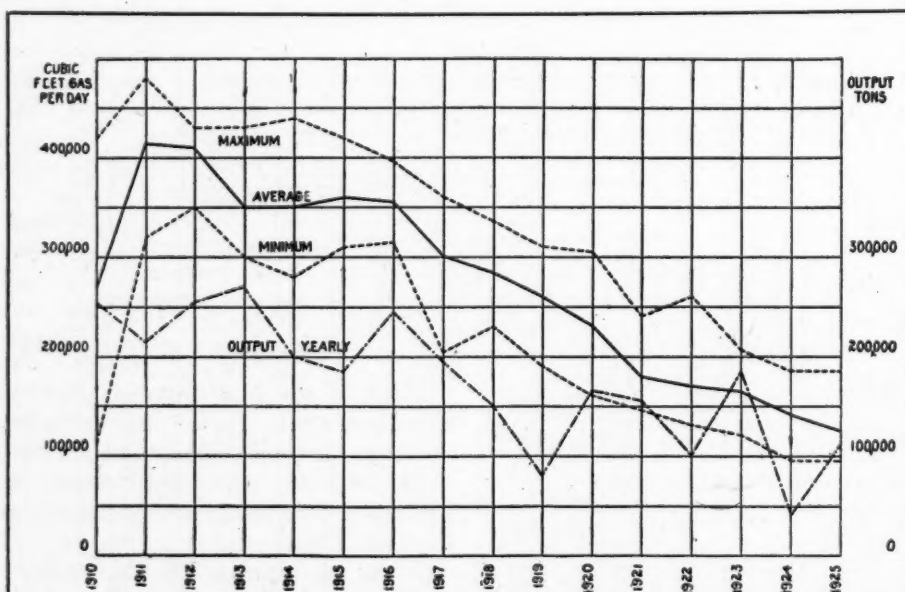


Fig. 3—Maximum, Minimum and Average Gas Efflux

This shows a gradual decrease in the volume of gas given off throughout a long term of years. Ever since 1911 the quantity of methane evolved daily in this mine has been slowly declining.

ing a sufficient total quantity of air and distributing it to the various splits in a logical manner. Mines having a small amount of gas do not need such close supervision but there are some coal operations in which the production is actually limited by the ventilating capacity. It is in such cases that a most careful watch must be kept on this dangerous gas with its erratic and apparently inscrutable tendencies. Some hope was at first entertained that after daily analyses had extended over a considerable time, an interpretation of the results might establish fairly definite laws governing the efflux of mine gas and that some rule might be found whereby its quantity could be predicted. After nearly 20 years of careful study in many mines this problem has not been solved, although certain tendencies have been established.

It would be a great assistance indeed to a mining engineer if he were able to predict the quantity of gas that would be encountered in opening up a new mine. It would further help him if he knew when and under what circumstances additional gas might be anticipated in mines already opened, or how to control the flow. At present only a general statement can be made that the flow of gas follows the rate of development. Barometric pressure may have some influence

on the rapidity of efflux but in the presence of other and more powerful factors its effect is negligible. The truth is hidden in a confusion of many factors, most of which are unknown, and we will have to content ourselves by dealing with this troublesome substance when, where and in the quantities in which it is found. The engineer is, therefore, forced to provide for maximum quantities and there still remains the uncomfortable feeling that the best he can do may not be good enough.

So far only daily samples have been taken and it is probable that a continuous record would throw additional light on the subject, particularly as regards daily fluctuations which may occur during active or idle periods. In the use of this analytical method taking more than daily samples would be prohibitive in cost. In the accuracy of single determinations it is everything that could be desired. Frequent trials show that

the same or different analysts can check within 0.005 per cent. The analysis as reported shows also the carbon dioxide, but since the sample is taken by water displacement no dependence is put upon it. It does indicate, however, if any abnormal amount of this gas is present. If hydrocarbons other than methane are present, they are necessarily reported in their methane equivalents.

The source of gas in coal mines has not been satisfactorily explained. Gases of occlusion, adsorption or even the volatile matter in the coal itself are insufficient to account for the enormous volumes of gas that are continuously being exhausted from our mines. Several years ago in a paper before the West Virginia Coal

Mining Institute the theory was advanced that most of the hydrocarbon gases encountered in mines were natural gas and that coal beds were simply the reservoir and the path of flow from other strata. The suggestion was not generally accepted but experience in the accumulation of quantitative results has strengthened an opinion in it.

The theory of coal formation assumes that all grades and qualities of this material were originally in the form of peat, a compound of carbon, hydrogen and oxygen, together with some impurities. Like the peat of the

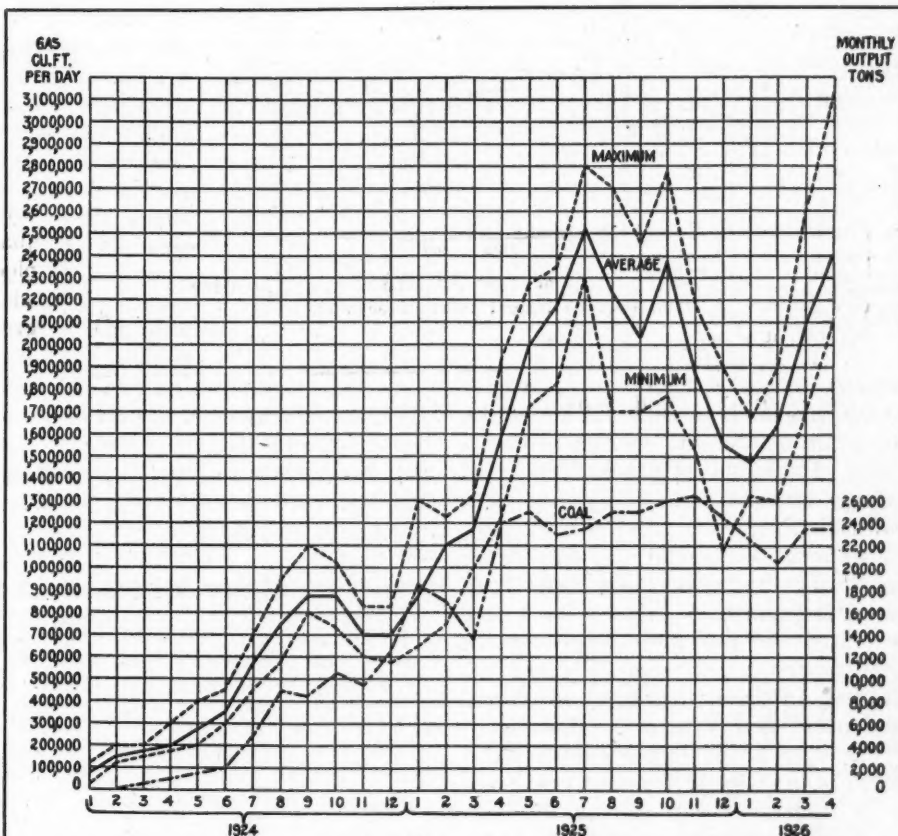


Fig. 4—Coal Produced and Gas Evolved in Mine in Pocohontas No. 4 Bed

Obviously the gas evolved in this mine is increasing in volume, yet here again no perceptible relation seems to exist between it and the coal output. The gas appears, however, to be subject to violent fluctuations, its maximum sometimes decreasing a million cubic feet per day in the course of three months and then increasing quite as rapidly during the next quarter year.

present day it had a high percentage of volatile matter of which a large part was water. In its transition to the various high- and low-volatile coals it has lost its volatile constituents in varying degrees. It is assumed that this change is the result of time, pressure and heat. Time and pressure are indisputably primary causes, but heat must be defined with the degree of temperature. For instance, there was no such action as takes place in a laboratory in determining the volatile matter. It is more probable that no destructive distillation took place at all. A close study of the ultimate analyses of coals will show that the transition from high- to low-volatile grade can take place by successive removals of combined water with no loss of carbon whatever. Certainly no large loss, if any, of volatile hydrocarbons was necessary to make the change. The physical characteristics were the result of time and pressure. Therefore gas as found in coal mines does

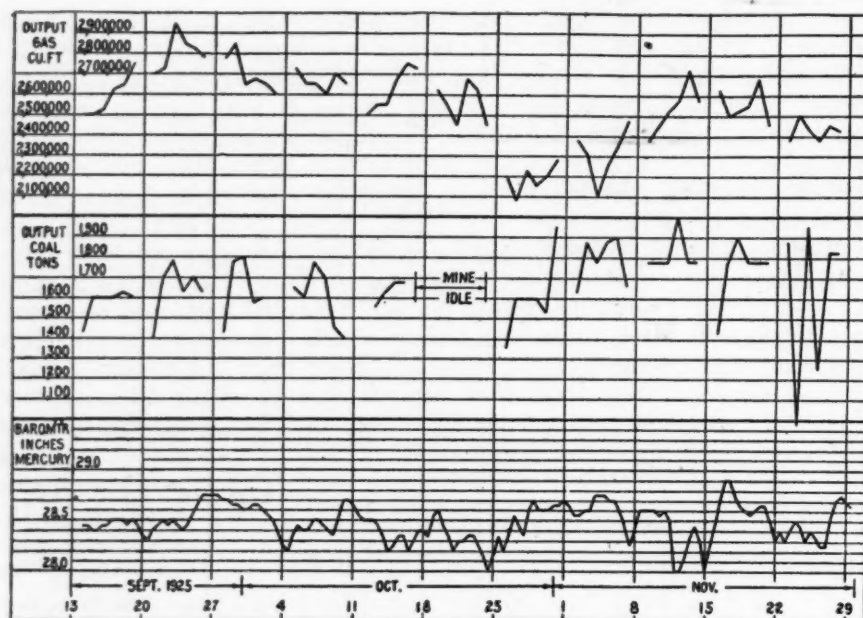


Fig. 5—Daily Fluctuations of Gas With Output and Barometer

This applies to a mine working the Pocahontas No. 4 bed in the Pocahontas region of West Virginia. Although barometric pressure may exert an influence on the emission of gas in a mine it would appear that other influences are more powerful. So many variables seem to govern gas efflux that no logical relation between them has been discovered.

not necessarily depend on the coal bed proper as a source.

In the accompanying illustrations some of the results obtained from observation on the gas evolved in mines are shown graphically. Individual mines were selected to illustrate particularly some of the factors that were supposed to predominately govern the rate of flow. The extraction of coal must necessarily be considered and the rate of coal output has, in every case, been plotted in parallel with the gas flow.

In Fig. 1 is illustrated the gas flow (expressed in daily average by months for a period of 10 years) in a shaft mine 550 ft. deep in the Pittsburgh bed of coal in the Fairmont region of West Virginia. The coal is of the bituminous type with about 38 per cent of volatile matter. The seam is practically flat and free from irregularities such as faults, or clay veins. The territory is practically virgin as the nearest opening into the seam was at least a mile away when the shaft was put down. The record has been continuous, samples being taken daily (working days) since the shaft reached coal, which was in January, 1916. The peculiarity of this mine is that the maximum flow of gas was encountered within 3 years after its opening and then settled down to a more or less uniform rate. In this instance there is evidently no relation between the rate of coal output and the flow of gas. Even in the case of no output for several months in 1925 the flow of gas was not more than appreciably affected.

In Fig. 2 are shown similar results secured in an adjoining mine in the same bed. The two mines are about identical as regards geological conditions and depth of coal and were opened up at the same time and maintained practically the same coal output for several years. Physical conditions are identical as nearly as can be described in these two operations, yet the gas charts are entirely different. In Fig. 2 the gas flow has evidently not reached its maximum. It also illustrates the fact that the flow does not cease with a cessation in coal mining.

In Fig. 3 is illustrated the case of a mine, working

the Pittsburgh bed in the Fairmont region, that is nearing exhaustion. This mine was originally opened about the year 1854, by a drift in a tract of coal containing 1,800 acres. In 1888, a shaft was sunk to a depth of 125 ft. in a more central location. Within the last 10 years the adjoining territory on all sides has been completely developed. The diagram indicates that a reduction in the flow of gas may be expected after the territory has been fully developed.

In Fig. 4 is illustrated the case of a mine in the No. 4 Pocahontas bed of coal in McDowell County, W. Va. This is a shaft mine 565 ft. deep in virgin territory. The maximum and minimum lines indicate the highest and the lowest daily results during the month. The average shows that during the first year the rate of flow of gas follows closely the rate of development. It also indicates that the flow may fall off materially for no perceptible reason.

In Fig. 5 daily results are plotted for a period of about 3 months with the corresponding daily output of the mine and also the record of the barometer during the same period. This is a shaft mine 560 ft. deep in the No. 4 Pocahontas bed of coal and has been operating about 10 years.

Many Mines Shut Down

It is reported from Iowa by R. T. Rhys, inspector for the second district of that state that a lack of market at a price that would pay the cost of production was responsible for closing down some of the largest mines of the state during 1924 and 1925. During the two-year period named some of the expense of maintaining these idle operations subjected the owners to heavy financial loss.

This lack of demand for the product of Iowa's mines made its appearance, according to the inspector, in 1920 and has continued with more or less acuteness ever since. The present outlook for the idle mines to resume operations in the near future is not bright. One of the causes contributing to this condition is the fact that much of the coal produced within the state has, in the past, been marketed without thorough cleaning and adequate preparation. It is believed by some that the intrinsic quality of Iowa's coal is equal to much of the fuel that is shipped into the state from outside sources and that suitable preparation would render it a powerful competitor of the imported fuel for either domestic or steaming purposes.

If this belief is to be credited the condition existing in certain coal producing districts of Iowa forms excellent proof—if proof were needed—that competition in coal production is keen. Under such conditions it pays to modernize. In some cases, too, coal companies must modernize if they hope to live. This condition is by no means peculiar to Iowa but applies with almost equal force to many coal regions throughout the Middle West.

Viewpoints of Our Readers

British Empire Steel Coal Being Mined In Places by Retreating Systems

Did Not Come to United States to Seek Light on Nova Scotia's Problems—Submarine Mining Makes Complete Extraction Undesirable

I noticed with astonishment the extraordinary editorial in *Coal Age* Aug. 12, entitled "The Nova Scotia Experiment." Where did you get your information? It certainly was from no responsible official of the British Empire Steel Corporation. From beginning to end every statement made in the editorial is incorrect, in so far as it refers to the modes of work in the British Empire Steel Corporation mines.

In the first place no British Empire Steel officials visited the United States, looked over the mines and then came back and followed British precedent. True, a few of our colliery managers visited a number of mines in the United States about a year and a half ago, but this was for the purpose of studying the operating details of American mines and not to consider the methods of work as applicable to the Nova Scotia mines.

TWO YEARS WITHOUT VISIT

As the officer directly responsible in the ultimate for the methods of work in the mines of the British Empire Steel Corporation, I have unfortunately found it impossible to visit any mines in the United States for upward of two years and I can assure you that the other members of the mining engineering staff of the Corporation have been placed in the same unenviable position.

Secondly, the editorial states that the mines in Nova Scotia are being operated by the longwall-advancing method and the suggestion is made that it would be better policy to adopt the longwall-retreating system, such as is more general in the United States—at least of late years. This gratuitous suggestion is evidently made by some person who knows nothing about the Nova Scotia conditions and who consequently is in no position to offer an opinion. As *Coal Age* apparently deemed it expedient to advise its readers of imaginative mining methods adopted

in Nova Scotia, it might be interesting for these same readers to know the actual modes of work in the Nova Scotia mines.

Unfortunately, in most of the larger submarine mines, the lack of sufficient cover makes it inadvisable to extract the entire seam; as a result the bulk of the output is still produced by the room-and-pillar method.

In three mines where the longwall system has recently been introduced, a modified system of longwall retreating has been adopted, the coal blocked out being taken partly in advance and partly in retreat, but in all cases the main roads are driven in solid coal and conveyors deliver the coal from the faces to the main level.

DROVE TO BOUNDARY

In another mine working under 3,000 ft. of cover, the roadways are driven to the boundary in solid coal and the faces brought back on retreat. This system, at this great depth, has not been attempted, I believe, either in the United States or Great Britain.

At one mine only to date is the true longwall-advancing system in operation and this only because of the impossibility of maintaining roadways driven in solid coal—the heaving of the floor putting a prohibitive cost on the operation. As the entire seam has been removed, the cost is now such as to keep in operation a mine which otherwise must have closed down. The writer of the editorial in question even admits that this system is in use in the United States and that the engineers in the United States are to be congratulated on having it; apparently what is "sauce for the goose is not sauce for the gander."

It might also be advisable to disillusion your readers regarding another statement in the article. The British conditions are not closer to Nova Scotia conditions than those of the United States.

A further statement is made that,

"The United States has been ready to follow the best in British practice but its engineers feel that a complete acceptance of such methods will not solve its problems as well as a careful culling of the best." That is a reasonable attitude and yet the writer of the editorial will not give the same latitude to Nova Scotia engineers; he breathes wholesale condemnation because American methods have not been followed *in toto*.

The latter half of the editorial is a surmise as to what the Nova Scotian engineers "believe" or "feel."

I think on reflection you will admit that the whole article is a rather cowardly attack on the officials of the British Empire Steel Corporation, built entirely on a hypothesis.

W. HERD,

Chief Mining Engineer.

British Empire Steel Corporation,
Glance Bay, N. S.

Open-Type Motor Not Proved To Be Explosion Cause

The report of the explosion at Clymer No. 1 mine that appeared in an excellent article in the issue of Sept. 16 differs slightly from our own record, one of the discrepancies being the statement that the Commission "believes" that the open-type motor on the booster blower was the cause of the explosion. In the actual report that is given only as an *opinion*.

POSSIBLE CAUSE ONLY

And it may be proper to say that in several talks with me the inspectors frankly admitted that they could not definitely determine what did cause the explosion, but felt that they should indicate something that might have done it. I find no fault with the inspectors for they were fair in their examination and assured me that the local management had continually done everything possible to insure the safety of the men and the mine. The coroner's jury, composed of really high-class men, listened to the exhaustive testimony, well brought out by Mr. Thomas, including the report of the three state inspectors, and felt unable to determine the cause of the explosion or its point of origin. Another difference, quite unimportant, is that in active operation the mine would employ some 266 men instead of 150, as stated in your article.

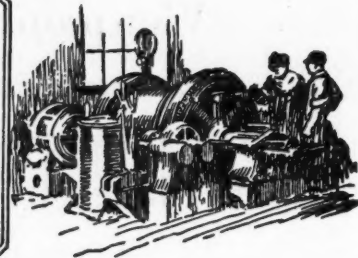
FRANK E. HERRIMAN,

President.

Clearfield Bituminous Coal Corp.
New York City.

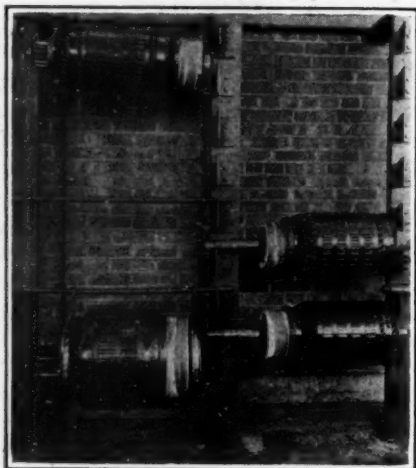


Practical Pointers For Electrical And Mechanical Men



Commutators Are Covered While in Storage

When an armature is put into service the commutator should be smooth, clean and untarnished. It leaves the lathe after being turned and polished following rewinding or repair to its armature in this condition and the logical practice would be to keep it in the same good condition until the armature is put into use. This, however, is not always done.



Snapped in the New Orient Shop

On the left is an 8-ton locomotive armature and one from a type 19-A mining machine. Those on the right are for type 119 breast machines. Both armatures at the left are supported by eyebolts screwed into the housings. All of the commutators are protected by duck.

Sometimes an armature is stored so close to the space allotted to winding and general repair work that insulating paint is splashed on the commutator. Again it is not unusual for the commutator to be roughened by one or more small dents as a result of tools being dropped or by being hit with the end of a mis-handled pinch bar. Even though neither of these happen, if the commutator is stored for some time in a shop atmosphere it will tarnish so as to require a sanding when the armature is put into service.

To preserve commutators in their original clean and smooth condition while in storage, it is the practice at the New Orient mine in southern Illi-

nois to apply a temporary covering of duck. Several armatures with their commutators thus protected are shown in the accompanying illustration. The covering used consists of a strip of duck wound around the commutator and held in place by friction tape.

Another interesting detail shown in this photograph is the method of hanging on a rack, those armatures that are assembled with their bearing housings and pinions. Eyebolts are screwed into the housings and a suspension rod passed through the eyes of these bolts. In many shops for the want of a simple provision for hanging on a rack, armatures assembled with housings and pinions are stored on the floor. In most instances this represents poor practice.

Adapting Dumps to the Heavier Cars

Rarely does a truly progressive coal company forego an opportunity to improve the action of any piece of equipment that forms a vital link in the chain of production. An example of improvement to existing equipment is furnished by the Island Creek Coal Co., one of the largest producers of West Virginia. A casual visitor to this company's mines is not likely to notice any strikingly inefficient equipment. In contrast to the practice of many coal-producing firms, the foreman does

not here have to apologize for any of the company practices. If he sees opportunity for an economic improvement to any of the equipment and makes it known to the proper officials, the matter is not dropped until it is threshed out and either declared impracticable or given a fair trial in service.

HEAVIER CARS IMPOSED SEVERE DUTY

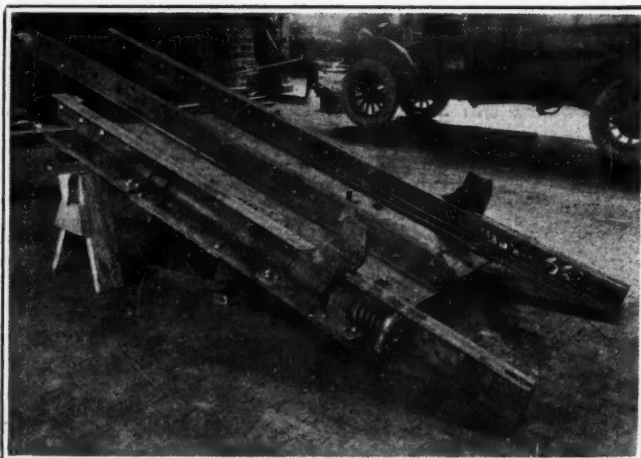
Some time ago the replacement of the small-capacity cars used at several of the mines, by larger ones imposed a more severe duty on the cross-over dumps. The heavier cars had a tendency to cause the dump to kick up behind because of the unbalanced weight of the empty as it left the platform before the loaded car had entered. This caused a severe stress on the brake.

Someone suggested that if one rail was extended backward a few feet the incoming loaded car would ride onto this extension before the empty could move appreciably from the center. This would relieve the brake of duty and prevent the dump from tipping up as the empty was leaving. As a result of this suggestion all the old cross-over dumps not suited to use with the heavier cars are being rebuilt.

A *Coal Age* camera caught a dump that was being changed over and adapted for use at No. 14 mine while it was being rebuilt in the central

Longer Rail Applied

As originally built both track rails were of the same length. The one on the farther side has here been lengthened so that the forward wheel of the loaded car is upon it before the empty has moved appreciably from its position. The rail on the near side could not be lengthened because of the tripper treadle or grass-hopper.



shop at Holden. As may be seen in the accompanying photograph, the rail on the farther side extends several feet farther backward from the dump platform than the one on the near side. Dumps rebuilt in this way have already been installed in mines No. 1, 7 and 8. As seen in action at No. 1 operation the dump with its extended rail shows no tendency whatever to tip as the empty leaves it. One front wheel of the loaded car rides onto the extended rail by the time the empty has moved a few inches from the center.

Supports Trolley and Feeder At Desired Height

As it is ordinarily done, to hang trolley wire a uniform distance above the rail where the mine roof varies in height is difficult and expensive. This is because it requires cutting extension rods or pipe to exact length on the job. This difficulty is eliminated by a method that has been inaugurated at several mines of the West Virginia Coal & Coke Co.

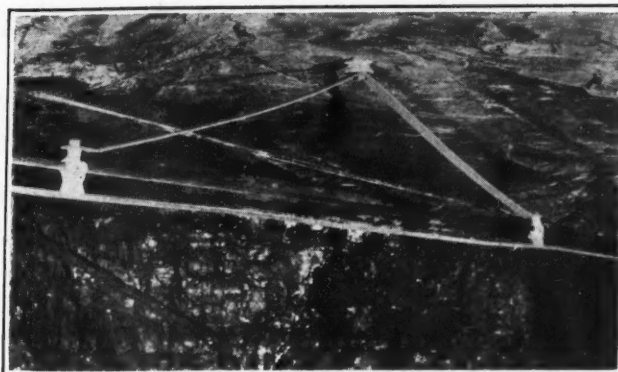
In the accompanying illustration may be seen an extension of the type used in the No. 4 mine at Omar. Here a 500,000-cir.mil feeder and a 4/0 trolley are supported by the new method. The height variation is secured by bending the 1x1½-in. strap iron to the desired angle and sliding the clamps to the correct spacing on the wire before tightening.

THIS METHOD HAS ADVANTAGE

An important advantage inherent to this method is that one length of strap iron serves for a considerable range of roof heights. The straps are cut in several standard lengths at the shop and are drilled at the center for the hanger and at the ends for the clamps. They are not bent in the shop but instead are sent out straight in bundles of a standard length.

Installation is quite simple. After the hanger is fastened to the roof the straight strap is bolted to it and the ends pulled down to approximately the desired height. The tips are then bent slightly with a monkey wrench and the clamps attached with short cap screws. Exact height is obtained by proper spreading of the clamps before they are tightened on the wire.

Another reported advantage of this extension is its flexibility in case of falls. The clamps slide toward each other if a heavy weight comes on



Support for High Place

Here a 500,000-cir.mil feeder and the trolley are supported by a strap-type extension. To adjust the wire to exact height the clamps are spread apart or moved closer together, and the strap bent by hand to conform to their positions.

the wire. In many instances after a fall the wire can be brought back to height by loosening and re-adjusting the clamps. G. E. Shelor, formerly of Omar but now chief electrician of the Monitor Coal & Coke Co., Wilkinson, W. Va., originated the idea of this strap-iron extension.

Chart Gives Arc of Contact Of Belt Drives

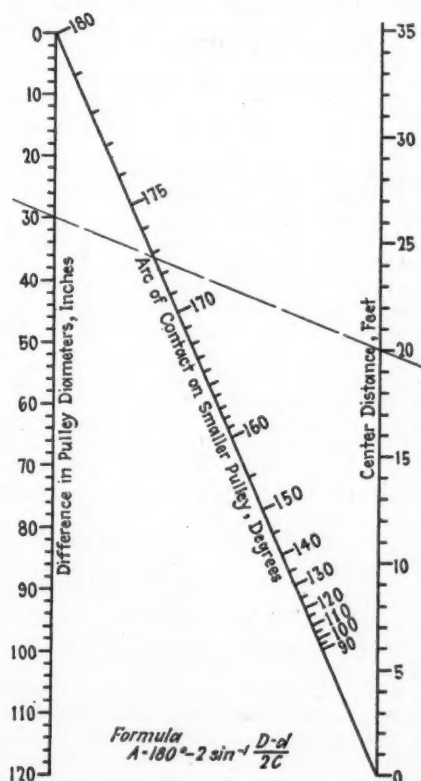
In laying out a belt drive the arc of belt contact should approximate 180 deg. as closely as possible. A 180-deg. arc of contact is possible, however, only when both pulleys are of the same diameter. It is not con-

sidered good practice in any case to have the arc of contact on the smaller pulley less than 165 deg. Below that point a belt must be run at a very high tension to make up for the loss in arc of contact or some type of belt wrapping device used. If it is necessary to operate a belt at a lower arc of contact, allowance must be made in the capacity rating. For example, at an arc of contact of 160 deg., a belt will transmit only about 90 per cent of its rated capacity. With decreasing arc of contact the power-transmitting capacity decreases rapidly, until at 140-deg. arc a belt will transmit only 80 per cent of its rated capacity.

Wherever possible it is advisable to increase the distance between centers, which will increase the arc of contact. The accompanying chart, by J. E. Rhoades & Sons, Philadelphia, Pa., may be used to determine quickly the arc of contact for various diameters of pulleys set at different center distances.

HOW TO USE CHART

This chart is used on open drives where the belt is practically without sag. The method of using the chart is as follows: Locate the difference in pulley diameters in inches on the scale at the left, and the center distance in feet on the scale at the right. When these two points are connected with a straight-edge which may be either a fine thread, or preferably a celluloid rule, the arc of contact on the smaller pulley may be read off at the intersection of this line with the center diagonal line.



Method of Using Chart for Determining Arc of Contact

In the instance illustrated, the large pulley is 30 in. greater in diameter than the small pulley, and the center distance is 20 ft. The intersection of the center line with the line connecting these two points on the corresponding outside scales indicates that the arc of contact would be approximately 173 deg.

IN INSTALLING PUMPS in main relay, district or sectional pump stations, upon which much depends, it is an advantage to set the pump and motor as high above the floor as is practically possible. This trifling elevation may at some time be the means of saving a mine or section in high water.



News Of the Industry



Annual Meeting of Williamson Field Emphasizes Necessity for Close Study Of Distribution and Production Data

By Sydney A. Hale
Associate Editor, *Coal Age*

Consideration of marketing problems took first place in the deliberations at the fourteenth annual meeting of the Operators' Association of the Williamson Field held at the Mountaineer Hotel, Williamson, W. Va., Oct. 1. Emphasis was placed upon the work already done in furnishing producers with accurate data on past sales and delinquent accounts through the Bureau of Coal Statistics maintained by operators in the Williamson and Kanawha fields and the hope was expressed that the scope of those reports would be extended to take in all high-volatile production in southern West Virginia, Virginia and eastern Kentucky.

Freight rates, as one of the important factors in distribution, also received attention, both in the discussion of the status of cases now pending before the Interstate Commerce Commission and in the announcement that organization of a traffic bureau was under way. Extension of statistical studies to take in surveys of individual labor efficiency as well as total production costs was recommended by William N. Cummins, chairman of the association's statistical committee.

In opening the business session of the organization on Friday afternoon, Thomas DeVenny, president of the association, declared the extension of the work of the statistical bureau ranked as one of the most important achievements of the association during the past year. Touching briefly upon the freight rate controversies, he expressed the belief that the southern field would emerge victor in its fight with the northern operators.

It was gratifying, continued President DeVenny, to note the increased appreciation of the value of a study of the most effective uses to which Williamson coal may be put. The importance of preparation was receiving greater recognition. Marked progress had been made in building up a demand for the coal of the southern high-volatile districts in coke-making and this trade will grow. Scientific exploitation of the proper markets holds such possibilities that operators would be foolish to sell their birthright in high quality fuel for "a mess of pottage."

The report of W. S. Leckie, treasurer,

showed the association to be in a healthy financial condition. George Dunglinson, Jr., chairman of the executive committee, recommended that the date of the annual meeting be changed from the third Thursday in June to the third Thursday in October. An amendment to the by-laws making this change was adopted. The labor situation, said Mr. Dunglinson, was satisfactory.

Urges First Aid Training

At the solicitation of the Williamson operators, continued the committee report, a mine rescue car was now in the field. Mr. Dunglinson urged that all operators insist upon 100 per cent training of their employees in safety work. Where this has been done, there has been a marked decrease in accidents.

Summarizing other activities of the association, the chairman of the committee called attention to the inauguration of a traffic bureau to maintain tariff files and make comparative rate studies. The association had persuaded the Norfolk & Western to incorporate a non-recourse clause in its coal billing receipts. Hostile legislation in Kentucky had been killed, largely through the efforts of the Kentucky Mine Owners' Association, with which the Williamson association had co-operated. "The National Coal Association," said Mr. Dunglinson, "unquestionably prevented the passage of coal legislation at the last session of Congress." Tribute also was paid to the work of the West Virginia Coal Association in state affairs.

Recommends Self-Insurance

The executive committee recommended that the Kentucky members of the association give serious consideration to the question of carrying their own compensation insurance and so avoid the high rates now demanded by insurance companies carrying risks in that state. Representations of the association which resulted in a change in service meter charges of the power companies had saved the members over \$100,000 annually. "No bills" at the scales were no longer a disturbing factor. Refusal of the Great Lakes dis-

West Virginia Mines Make Production Records

A compilation made by the West Virginia Coal Association discloses the fact that at least three mines in West Virginia during 1925 established new records for production. The mines were the No. 1 of the Island Creek Coal Co., Logan County; the No. 9 mine of the United States Coal & Coke Co., Filbert, McDowell County, and the Rich Run mine of the Elk River Coal & Lumber Co., Clay County. Each of these produced more than 700,000 tons of coal during the year. Island Creek Mine No. 1 stood first with an output of 767,085 tons; Filbert was second with 755,372 tons and the Rich Run mined 706,679 tons.

The Widen mine had the largest individual tonnage per man employed. There were 388 employees with an average annual production of 1,821 tons each. With 518 men employed at the Island Creek mine there was an average tonnage of 1,480 for each employee. With 490 men employed at the Filbert mine the production averaged 1,541 tons for each man.

trict to furnish reports on cars held for reconsignment was deplored.

Mr. Dunglinson stated that conferences had been held with manufacturers to discuss pooled purchases. Early application of pool buying to explosives and steel rails was forecast. The chairman believed that great progress in this direction was possible, especially in the purchase of bulk commodities.

The appreciation of the association of the work of the executive committee was voiced by W. A. Richards, Majestic Collieries Co.

The report of the freight rate committee, H. T. Wilson, president of the Red Jacket Consolidated Coal & Coke Co., chairman, reviewed the cases now pending before the Interstate Commerce Commission and warned the operators that they were facing a critical situation. President DeVenny said that the only thing missing in the Wilson report was any hint of the time and thought the chairman had given to his work.

Reviewing the statistical activities of the association, Mr. Cummins said that the past sales report had been started in May, 1925, with only five companies reporting. Today the reports took in

76.2 per cent of the production of the Kanawha and 77 per cent of the Williamson field tonnage. With such a representation, the bureau could afford to wait patiently the time when all high-volatile fields in the southern districts would join in the work. Unusually rapid growth has marked the credit interchange reports started in July. Moreover, he added, these reports have quickened the interest of the sales agents.

Praises Progress Made

Landon C. Bell, counsel for the Ritter Lumber Co., who had acted in an advisory capacity for the operators when the statistical bureau was launched, stated that the plan used was substantially the same as that perfected by the lumber interests after the first Supreme Court decisions in the hardwood association cases. The progress made had far outstripped that in any other field in the same length of time. Coal data, however, could be compiled with greater ease and simplicity because there was not the multiplicity of grades which made collection of data on hardwood lumber difficult.

As time goes on, continued Mr. Bell, the association will discover other fields of activity equally as important as those in which it now is engaged. Among these activities, the speaker suggested the formulation of a sales code; arbitration for the settling of trade disputes, with provision for the assessment of court costs against parties refusing to accept arbitration; standards, with a bureau authorized to make inspections and adjustments between buyers and sellers.

Mr. Bell criticized the southern carriers for forcing the coal men to bear the burden of the defense in the attack upon rates from the southern fields to the lakes and tidewater. He also suggested that the port of Norfolk had been stunted in its natural growth by a railroad policy which preferred the more northern ports.

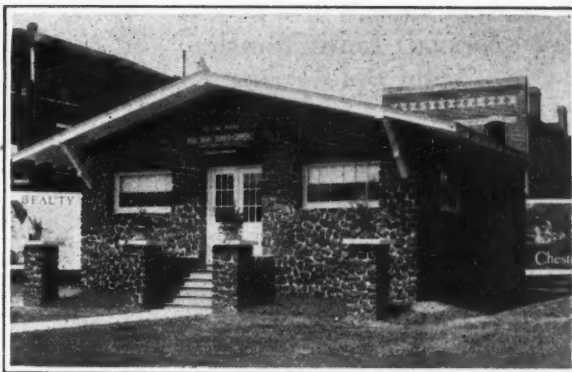
Where Shrewdness Ends

The West Virginia operator, said Holly Stover, head of the Stover Smokeless Coal Bureau, is one of the shrewdest men in business, but his shrewdness ends when his coal is placed on the railroad cars at the mines. He makes no study of sales methods and distribution problems. "The cash drawer should be the most important piece of equipment in a coal organization. Let's keep it working hard." The idea that it is necessary to give coal away to move tonnage is a child of ignorance.

The day of isolation is almost gone, declared Mr. Cummins. The past failure to share data in the coal industry has been due largely to inertia which now is being overcome. One field in which there is need for more co-operative study is in labor efficiency. Data showing tonnage produced by individual workers and classes of workers should be compiled. The district as a whole must maintain its group efficiency if it is to progress. Freely furnishing data will not affect the performance of the individual operating units. The efficiency of the field as a

Keep Cool with Coal —Also Warm

Four-room bungalow erected by the Chamber of Commerce of Middlesboro, Ky., proves a substantial and impressive exhibit of one of the chief industries of southeastern Kentucky.



whole will be improved, but business will divide on the old basis.

Indirect approval of the proposal to gather labor data was given by the association members when they approved a motion made by Mr. Cummins for the appointment of a special committee, under the jurisdiction of the executive committee, to inaugurate statistical plans to handle any questions outside of sales and related data.

Col. Edward O'Toole, United States Coal & Coke Co., was another speaker who thought that producers had neglected the distribution side of their business. "We spend sleepless nights trying to figure out schemes to increase production or reduce costs a small fraction of a cent per ton and give no thought to the sales end where changes are considered in dimes and quarters." What is needed, declared the Colonel, is greater knowledge of sales by the executives of the producing companies, greater closer personal attention by them to the problems of distribution.

Re-elect De Venny President

Thomas DeVenny, general superintendent of the Portsmouth Byproduct Coke Co., Portsmouth, Ohio, was elected president for the fourth consecutive term. Fellow officers and members of the executive committee also re-elected were:

Vice-President: William N. Cummins, general manager, Red Jacket Consolidated Coal & Coke Co., Red Jacket, W. Va.

Treasurer: W. S. Leckie, general superintendent, Leckie Collieries Co., Aftex, Ky.

Executive Committee: George Dungenlison, Jr., general manager, Pond Creek

Colliery, Bluefield, W. Va.; L. E. Woods, president Crystal Block Coal & Coke Co., Welch, W. Va.; George W. Coffey, president, War Eagle Coal Co., War Eagle, W. Va.; G. F. Downey, Jr., general manager, Landstreet-Downey Coal Co., Burch, W. Va.; T. H. Huddy, general manager, Bailey Fuel Co., Toler, Ky., and G. C. Wood, general manager, Tierney Mining Co., Stone, Ky.

About 200 members and guests attended the annual dinner which closed the meeting. Mr. Cummins acted as toastmaster. Addresses were made by W. J. Jenks and B. W. Herman, vice-presidents, Norfolk & Western Ry.; J. G. Bradley, president, and Walter H. Cunningham, secretary, West Virginia Coal Association; J. Van Norman, senior counsel for the southern operators in the lake cargo and tidewater rate cases, and Douglas Malloch, poet and humorist, Chicago.

Thurmond Properties Pass to Hutchinson Control

On the eve of his death at Charleston, W. Va., last week, C. E. Hutchinson, of Fairmont, consummated a deal for the purchase of the coal lands and leaseholds of the Thurmond Consolidated Coal Co. in Logan County, West Virginia. The purchase price was \$310,000, in addition to which the new owners assumed first mortgage bonds in the amount of \$350,000. It is announced that operations will be resumed at once at the Macbeth, Argyle, Thurmond and Dehue mines. H. A. McCallister, formerly general superintendent of the Main Island Creek Coal Co. in Logan County, will be in charge of the properties for the Hutchinson interests, it also has been announced.

The properties that changed hands include the lands and leases acquired about a year ago by the Thurmond Coal Co. operating in the New River field on Guyan River and Dingess Run in Logan County. The properties were purchased from the Jones Brothers, the Argyle Coal Co. and the Macbeth Coal Co. The operations have proved unprofitable and hence the lands and leases were offered for sale by the Central Trust Co. under terms of a deed of trust written to guarantee first mortgage and second mortgage bonds.

Walter Thurmond, of Thurmond, is treasurer and general manager of the Thurmond Consolidated Coal Co., J. S. Thurmond, his father, is president, and J. Cary Alderson, of Logan, is vice-president.

More Fact-Finding?

The establishment of a so-called fact-finding commission in the Department of Commerce, to conduct a complete investigation of the coal industry, including the cost of production on various wage scales, was recommended by S. A. Taylor, president of the American Institute of Mining Engineers, at the recent Denver meeting of the Colorado Section of the Institute. Mr. Taylor expressed belief that facts obtained by such a governmental commission would be a great help in stabilization of the industry, as well as with respect to clearing up misinformation in the public mind.

Mine Accidents Kill 243 In August; Eight Months Total Below Year Ago

Accidents at coal mines in the United States in August, 1926, caused the death of 243 men, according to information received from state mine inspectors by the U. S. Bureau of Mines. Of this number, 211 fatalities occurred at bituminous mines and 32 at anthracite mines. Based on a production of 54,577,000 tons of coal in August, the fatality rate was 4.45 per million tons as compared with 3.77 in August, 1925.

Included in the accidents in August this year was one major disaster at the Clymer No. 1 mine, in the bituminous field at Clymer, Pa., which resulted in the death of 44 men. Records covering the first eight months of the present year show 11 major disasters—that is, disasters causing 5 or more deaths each—with an aggregate loss of 255 lives. Last year during the same period the number of such disasters was 10, with a loss of 199 lives. The fatality rate based exclusively on these accidents thus far in 1926 is 0.622 per million tons of coal produced, as compared with 0.522 for the first eight months of 1925.

As the output of bituminous coal in August, 1926, was 46,352,000 tons, the 211 fatalities represented a death rate of 4.55 per million tons as compared with 3.41 for the corresponding month last year. The anthracite rate based on 8,225,000 tons and 8,966,000 tons, respectively, for August of the two years was 3.89 and 5.58, the actual

"It Isn't Done"

One of the numerous things that may not be done in England is to fish coal out of the bottom of a canal.

Two workingmen tried it the other day, in bathing suits and equipped with grimy bags for their treasure. The constable "ran them in" just on general principles, and the bench of magistrates decided after some hesitation that "it isn't done."

The defendants were fined \$5 each.

number of lives lost for these periods being 32 and 50.

During the first eight months of this year 1,575 men were killed by accidents at coal mines throughout the United States, resulting in a death rate per million tons of 3.84 as compared with 4.03 for the same period last year. Reports for bituminous mines alone showed an eight months fatality rate of 3.65 as against 3.58 for the corresponding months of 1925, a slight increase, which was more than offset by the decrease of the anthracite rate from 6.35 to 5.08.

An analysis of the 1,575 fatalities for the first eight months follows:

	Year 1925	Jan.-Aug. 1925	1926
All causes.....	3,811	4,029	3,839
Falls of roof and coal.....	1,842	1,864	1,782
Haulage.....	615	659	665
Gas or dust explosions.....	590	682	748
Explosives.....	174	210	134
Electricity.....	144	131	149

Tennessee Mine Explosion Traps Thirty-two Men

An explosion in the Rockwood mine of the Roane Iron Co., at Rockwood, Tenn., on Oct. 4 probably cost the lives of thirty-two workers. The first rescue crews on the scene recovered four bodies late Monday, but held out little hope for the safety of twenty-eight men trapped in workings three miles from the entry. Four other workers on the shift were brought out dazed but uninjured shortly after the blast.

Two of the rescued owe their lives to the heroism of Rube Cook, a miner, who was out of the range of the explosion and felt only its heat welling up from the lower levels. Instead of running toward the entry and safety, he fought his way through the smoke and debris and dragged out E. G. Boles and Eddie Davis, both unconscious. He also aided Will and Arthur Teague, both reeling from the effects of the blast, to higher levels.

Coal dust is said to have caused the explosion.

Ohio Meeting Off

The meeting of the board of directors of the Ohio Coal Operators' Association called for Oct. 4 at the Neil House, Columbus, has been indefinitely postponed. The Ohio organization went on record in favor of a modified 1917 wage scale at a meeting held in Columbus several weeks ago. Action seeking to make that scale effective, however, was left to individual members. Since that time increased demand has resulted in the reopening of a number of mines under the Jacksonville scale.

Coal-Mine Fatalities During August, 1926, by Causes and States

(Compiled by Bureau of Mines and Published by Coal Age)

State	Underground										Shaft				Surface							Total by States				
	Falls of roof (coal, rock, etc.).	Falls of face or pillar coal.	Mine cars and locomotives.	Explosions of gas or coal dust.	Explosives.	Suffocation from mine gases.	Electricity.	Animals.	Mining machines.	Mine fires (burned, suffocated, etc.).	Other causes.	Total.	Falling down shafts or slopes.	Objects falling down shafts or slopes.	Cage, skip or bucket.	Other causes.	Total.	Mine cars and mine locomotives.	Electricity.	Machinery.	Boiler explosions or bursting steam pipes.	Railway cars and locomotives.	Other causes.	Total.	1926	1925
Alabama.....	2	1	2				4					9						1						1	10	15
Alaska.....																									0	0
Arkansas.....	1											1												1	4	4
Colorado.....	2	1										3						1						1	14	11
Illinois.....	7	1	3									11		1								1	1	2	3	5
Indiana.....			1	2								3													1	3
Iowa.....												1													0	1
Kansas.....																									0	1
Kentucky.....	8		2		1		1		1			13										2		2	15	14
Maryland.....			1									1													1	2
Michigan.....																									0	1
Missouri.....																									0	0
Montana.....																									0	0
New Mexico.....	1		1									2													2	3
North Dakota.....															1										1	0
Ohio.....	5											5											1	1	6	12
Oklahoma.....			1	1								2													2	2
Pennsylvania (bituminous).....	17	1	5	44			2				1	70							1					1	71	33
South Dakota.....																									0	0
Tennessee.....			1									1													1	0
Texas.....																									0	0
Utah.....	2											3													3	1
Virginia.....	2											3													3	4
Washington.....												1													1	2
West Virginia.....	33	5	19	1			6		2			66						2	1				1	4	70	40
Wyoming.....	1						1					2													2	0
Total (bituminous).....	81	9	36	48	5		16		4		2	197		1	1		2	4	2			3	3	12	211	153
Pennsylvania (anthracite).....	14	3	4	4	1		1					31										1	1	1	32	50
Total August, 1926.....	95	12	40	52	6		16	1	4		2	228		1	1		2	4	2	1		3	4	13	243	
Total August, 1925.....	107	11	24	18	9		3	1	3		2	179	4	1	2	1	8	2	1	1		11	16			203

Passing of Pacts on National Basis Seen as the British Strike Drags On; Union Operators Here May Take Cue

By Paul Wooton
Washington Correspondent of Coal Age

At great cost to themselves, to their industry and to the public the British mine workers are learning that it is poor business to insist upon the impossible condition of continuing industry during a period of loss without a cut in wages.

The British miners were particularly short-sighted in insisting upon this condition, according to unofficial expressions reaching Washington, when the reduction was to have been temporary and when they admitted the inability of the owners to pay more. Before the strike there was every reason to believe that the wage rate could be advanced if the external and internal selling organizations were made operative, the middlemen eliminated and the other proposed reforms of the Royal Commission put into effect.

The miners elected to strike, however, and now, before reorganization can be attempted and its benefits enjoyed, the losses resulting from the strike must be recouped and the industry allowed to get on its feet financially.

Miners Provoked "Die-Hards"

The unreasonable attitude of the mine workers goaded the owners to the point where they were willing to make any sacrifice necessary to break up the Miners' Federation. Due to the possibility of government interference the owners may not accomplish all that they have determined to do, but it is evident that the miners will go back to work on terms that are substantially those that the owners will dictate, although the government probably will take some action calculated to save the face of the strike leaders.

It is believed certain that the operators will win their point of no further negotiations on a national basis. None here will be surprised if they go further and eliminate the minimum wage in the several districts. If the British go back on a district basis it is expected to stimulate the union operators in this country to return to district agreements.

Many regard as the most far-reaching benefit which has grown out of the British strike the freeing of the world from further fear of a general strike. If a general strike failed so miserably in Great Britain, it is recognized that it

would have little chance anywhere else. Thus the public and industry loses its fear of a club which has been held over its head for many years. It may be stated in this connection, however, that there is general commendation in Washington for both the unions and the British people generally that in such a convulsion no single life was lost.

What Agreement Involves

The national agreement being sought by the British mine workers has a different application than does the term in this country. The British miners want the minimum wage in each district incorporated in a national agreement with a uniform percentage added to the basic wage in each district. The minimum wage rate under the 1924 contract, for instance, was the 1914 basic wage rate in each district plus 33 per cent. The mine workers' organization is in fact nothing more than a federation.

While reorganization of the British industry must wait until some financial strength has been regained, recuperation is expected to be more rapid than is generally supposed. The whole kingdom is bare of coal. Orders have piled up and consumption will be above normal for some time. It will be impossible to meet the domestic demand promptly and the prospects favor a period of high prices.

The extent to which the British will get back their export business will depend on the Germans. Apparently the Germans are ready to fight to retain a part of the markets that once were British. They have had several months of big profits and are well entrenched financially to enter upon such a struggle. In addition, they can reduce their costs somewhat if necessary.

Consumers who have had to substitute German coal for the British product are said to have had little trouble in burning it. This is the result of German skill in blending their exports so that they would simulate British coal as nearly as possible. The effort in that direction seems to have been well expended, as the consumers are at least sufficiently satisfied that they will not pay a premium for British coal—if they go back at all to that coal.

The Administrative Board of the American Engineering Council will meet at Ithaca, N. Y., Nov. 11 and 12, when reports will be received from numerous committees which have been active during the summer. Among the topics in the large agenda which is being prepared are safety and production, registration of engineers, government reorganization, and jurisdictional strikes in the building industry. Dean Dexter S. Kimball of Cornell University, president of the Council, will preside.

Coal Stocks Gain, Though Consumption Is Heavier

Coal stocks in the hands of industrial consumers on Sept. 1, according to the National Association of Purchasing Agents, totaled 40,682,000 tons, or sufficient for thirty-three days at the rate of consumption during August. On Aug. 1 industrial stocks were 38,641,000 tons.

A slight increase in industrial activity during August is reflected in the coal consumption by industries, which totaled 37,652,000 tons, an increase of 628,000 tons over the preceding month. Total coal output in the same period increased 2,676,000 tons.

Comparative Estimates of Output Consumption and Stocks

	(In Net Tons)		
	Output	Industrial Consumption	On Hand In Industries
April.....	48,008,000	39,048,000	49,150,000
May.....	47,113,000	36,813,000	38,876,000
June.....	50,417,000	35,541,000	33,918,000
July.....	51,901,000	*37,024,000	36,998,000
August... 54,577,000		37,652,000	*38,641,000
Sept. 1.....			40,682,000

*Revised.

Days' Supply on Hand Sept. 1 in Selected Industries

Steel plants.....	23
Electric utilities and coal-gas plants.....	58
Byproduct coke plants.....	28
Railroads.....	33
Other industries.....	30

More Than Half of Freight Contributed by Mines

More than one-half of the total freight originated by the Class 1 railroads of the United States during the second quarter of 1926 was contributed by mines.

Products of mines to the extent of 181,962,780 tons were shipped during the quarter ended June 30, 1926. This is an increase of 8.2 per cent over the tonnage furnished by mines in the corresponding quarter of 1925. The increase in the tonnage of manufactured goods was 6.49 per cent. Products of agriculture shipped during the quarter, however, showed a greater increase than products of mines. Shipments of farm products were 8.34 per cent greater in the second quarter of 1926 than in the second quarter of 1925. The figures just have been compiled by the Interstate Commerce Commission. The separate items making up the total tonnage furnished by mines during the second quarter of 1926, are as follows:

	Tons
Anthracite	22,574,108
Bituminous coal	79,987,369
Coke	5,101,595
Iron ore	21,098,389
Other ores	3,224,381
Bullion and matte	219,257
Clay, gravel, etc.	43,935,653
Crude petroleum	2,617,991
Asphalt	827,373
Salt	763,261
Other products of mines	1,613,403
Total	181,962,780

The tonnage furnished by mines came from the various sections of the country as follows: Eastern District, 80,452,994 tons; Southern region, 24,996,862 tons; Western district, 50,930,758 tons; Pocatonton region, 25,582,166 tons.

EDITOR'S NOTE.—The foregoing Washington letter reflects certain views of official Washington. Due to the fact that policy as a rule prevents government officials from permitting their views being quoted directly, the authority for these reports is necessarily somewhat vaguely referred to. The views reflected are not those of any one group of officials, but of different men, in the legislative and executive departments. There is no necessary connection between their views and COAL AGE editorial policy; neither do they necessarily represent Mr. Wooton's personal views. It is felt that the opinions thus faithfully reflected will be of great interest to the industry. Where opinions are cited from sources outside of the government, the source will be specifically stated.

Final Answer to Government Scheme To End British Coal Strike Due Today; More Miners Quit Union Leadership

Formal answer to the British government's plan for ending the strike at the coal pits of the United Kingdom may be given today when the national delegate conference of the Miners' Federation meets again in London. That the answer will be a rejection of the Baldwin-Churchill scheme for a compromise agreement which would partake of the nature of both national and district contracts seems to be a foregone conclusion in the opinion of overseas observers.

The conference scheduled to be held today follows a meeting of a week ago when the delegates voted to refer the government's proposals to the individual districts. At that time, although the leaders of the union were still hostile to the program before them, the proposals were ordered referred without recommendation. Most of the districts which have voted have rejected the Baldwin-Churchill plan. On the other hand, it is reported that in many districts only a small percentage of the men have cast their ballots.

Rejection of the government program will not lighten the burdens of the leaders of the Miners' Federation. The mine owners have flatly refused to deal with the men on a national basis and it is not considered likely that the government will intervene again at an early date if it is rebuffed by the men. Criticism of the leadership displayed by the Federation executives is growing. Frank Hodges, secretary of the International Miners' Federation and formerly high in the councils of the British labor organization, has openly denounced "Emperor" A. J. Cook, present general secretary of the Federation, and his associates. The men, declared Mr. Hodges a few days ago, are being sacrificed on the altar of industrial bolshevism.

Desperate efforts to imbroil Continental European mines in the British

struggle have been unsuccessful. A request of the British miners that the International Miners' Conference, meeting at Ostend, Belgium, call a general strike was turned down at a session held Oct. 1. Sympathy and the suggestion of possible financial aid were all the comfort given the British strikers, despite support of their position by the extremists in the International.

Most of the delegates at Ostend firmly opposed a general stoppage. They were willing, they said, to contribute all they could to lend financial assistance to the strikers and to discourage exports to the United Kingdom. Nevertheless they were unwilling to carry their sympathy to the point of laying down their own tools.

There is a strong feeling on both sides of the Atlantic that the long contest is nearing its end. Victory it is believed will rest with the mine owners and will come as a result of the rapid disintegration of the strikers' resistance. Late reports indicate that approximately 200,000 men have returned to work. This number represents nearly 20 per cent of the normal working force.

Political Platforms Demand Federal Coal Regulation

Federal regulation of coal is demanded in three state political platforms adopted last week. Both the Republican and Democratic parties in New York have something to say on the subject and Massachusetts Democrats also join in.

The New York State Republican platform declares that in the field of federal legislation the party favors the early enactment of a law providing for "protection of the public in the event of future strikes in the coal industry."

Donahey Again Urges Ohio To Use Buckeye Coal

For the third time in as many years, Governor "Vic" Donahey of Ohio has issued a proclamation calling on citizens of Ohio to burn Ohio coal in order to save the industry. "The true situation surrounding our coal fields beggars description," the Governor announced in his proclamation. "Both miners and operators are continuing to suffer, as they have for the last few years, from inactivity. The only difference this year lies in the alarmingly increasing number of sufferers and the intensity of their poverty. So serious has the situation become that nothing but universal patriotic purchases of Ohio coal by Ohio coal users in the immediate future or extensive alms—which are neither desired nor asked—can possibly prevent virtual starvation of the unfortunate miners and their families during the cold months which confront us.

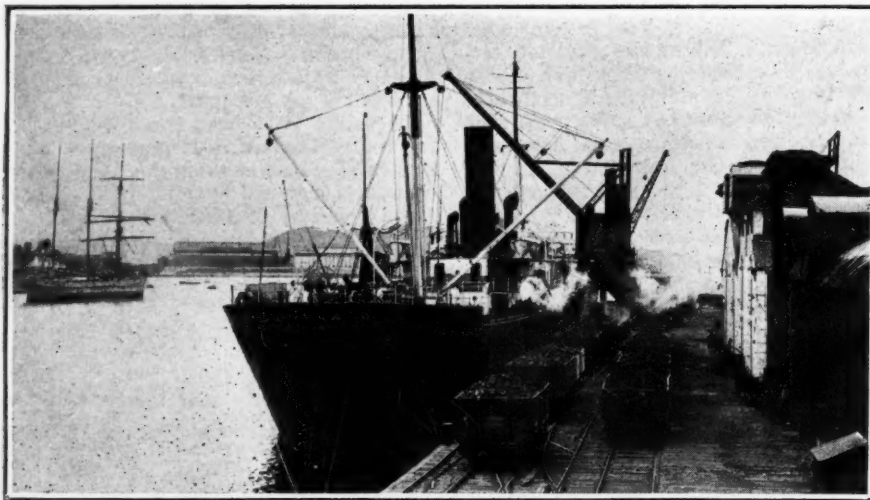
"There is no better coal than that with which Ohio's hills are lined, it is unexcelled either for domestic use or for general industrial purposes. The general prosperity of our great commonwealth cannot be permanent until it includes the miner, and it will not embrace him until Ohio's coal industry is revived."

In closing Governor Donahey calls on those in executive positions in business, manufacturing, public utilities, municipalities and all other political subdivisions and finally upon every man and woman in the state whether, their demand be large or small, to buy Ohio coal and to buy it now.

The Democratic plank charges that last winter "through Republican evasion and defiance of public interest, industry was paralyzed, and great masses of the people, particularly residents of the State of New York, suffered great distress and hardship. The coal situation, always pregnant with danger, is still deliberately and persistently ignored by the Republican officials and legislators, under the leadership of the Republican Senator from the State of New York. We pledge the Democratic members of Congress from this state to continue their efforts until legislation is enacted that will prevent recurrence of strife in the coal industry."

In Massachusetts, the Democratic plank reads:

"The severity of New England winters and the frequent strikes in the coal industry render it essential for the protection of the health of the people of Massachusetts that government regulation be applied to the operation and distribution of this fuel."



Wide World Photos.

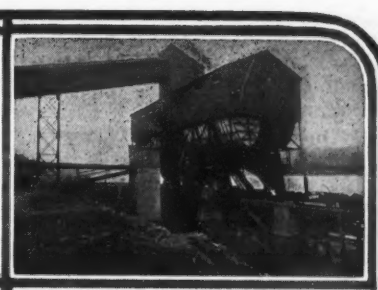
American Coal Landing at Plymouth

The steamer "River Clyde," famous during the World War, since renamed the "Angela," is shown in the harbor of the British port of Plymouth discharging a cargo of American coal from Hampton Roads.

The Chicago & Eastern Illinois R.R. has placed orders for 500 all-steel hopper coal cars.



News Items From Field and Trade



ALABAMA

Expansion Program Under Way.—The Tennessee Coal, Iron & Railroad Co. has placed an order for two 20,000-kw. generators for its central power station at Ensley, which is a part of the development work announced by the company several months ago. A battery of 77 byproduct ovens of 16-ton capacity is being added to the Fairfield coking plant, and a belt conveyor is being installed to carry the coal from a nearby washer directly to the ovens. The company now operates 433 byproduct ovens at Fairfield with a capacity of approximately 2,000,000 tons of coke annually. Other developments for increasing coal production in the Pratt division are understood to be contemplated.

Large Shaft Projected.—The Tennessee Coal, Iron & Railroad Co. will sink a large shaft in its Pratt division about a mile from the present Hamilton slope, according to announcement. The shaft will penetrate the workings of the Hamilton slope, which was opened about six years ago, and when it is finished all coal from the operation will be removed by this route, the slope to be used as a manway and haulageway for timbers and other supplies for the operation. The shaft will be developed and equipped for a capacity of 3,200 tons per day from the Mary Lee seam and a washery of about 2,500 tons capacity will be erected, with the necessary tipples and other structures. Houses also will be built for employees. The mine will be served by the Birmingham Southern R.R., a subsidiary of the Tennessee company.

County Coal Co. Sold.—The County Coal Co., which has been in the hands of a receiver for some time, has been purchased by the Alabama Fuel & Iron Co. for a reported consideration of \$70,000. This mine was developed several years ago and is located on the Cahaba River in the eastern section of Jefferson County, coal being produced through a slope on the Nunnally seam. It is located on a branch line of the Central of Georgia Ry. near the large mining operations of the Alabama Fuel & Iron Co. at Overton. It is understood that the new owners will make improvements to increase production. Charles F. DeBardeleben, Birmingham, is president of the Alabama Fuel & Iron Co.

ILLINOIS

Peabody Mines Reopen.—The Klondike mine, owned by the Peabody Coal Co., located on the Wabash R.R., south of Springfield, has resumed operations with 600 men employed. The mine had been closed since Feb. 25. It is said

that Peabody mine No. 3, northwest of Marion, will resume work this week. Cleaning up has been in progress during September. The mine normally employs about 700 men.

Eureka Mine Resumes.—The Eureka mine of Jones Brothers, at Marissa, has resumed operations after a long shut-down. At the Borders mine, at Marissa, a new steel tipples is being constructed and hoisting of coal will be resumed soon.

Stripping Operations Pushes Plans. The United Electric Coal Co. is rapidly pushing the work of opening its new stripping operation two miles west of Duquoin. G. F. Fairfield, local manager in charge of operations, expects to have four large shovels in operation in the near future, two of which are of the largest type in use anywhere in the world. In order to allow as much coal to be removed as possible the operations of the new company call for the changing of the course of the Beau-coupe River, which crosses the company's tract. To do this it will be necessary to remove about 200,000 cu.yd. of earth.

Machine Loading Scale in Prospect.—The Coal Operators' Association of Illinois is hopeful of an early agreement with the union on a scale for operators of loading machines since a recent conference with John L. Lewis and other officials of the United Mine Workers at Springfield. Mr. Lewis said he would hold another conference with the association officers and directors after he had presented the problem to the union's national executive board.

INDIANA

Robert Carroll, of Boonville, reports that he has taken a number of coal leases in Pike and Warrick counties, in southern Indiana, during the past month.

Articles of incorporation have been filed by the Little Fort Mining Co., of Terre Haute. The company was organized to take over and operate the former Schrepferman mine, north of Seelyville. The new firm lists its capital stock at \$40,000.

Further Development Foreseen.—A new impetus to development of coal lands in Pike County, where are located some of the world's largest stripping properties, is seen in the acquisition last week of the Evansville, Indianapolis & Terre Haute R.R. by the Big Four railroad. The deal gives the Big Four a 999-year lease on the E. I. & T. H. The E. I. & T. H. has been operated since June, 1920, by the Big Four management, during which time heavier

rails have been laid, new equipment acquired and development of coal lands has been started. S. D. McLeish, general agent of the Big Four at Evansville, declares that the E. I. & T. H. is developing into one of the best coal hauling lines in the country.

A deed was filed in the office of the county recorder at Terre Haute transfers from the Union Trust Co. of Pittsburgh and Perry E. and Lucy O'Neal to the Vandalia Coal Corporation of New Jersey the coal and mineral rights on and under 110 parcels of land in Vigo County. The land includes several thousand acres. The coal and mineral rights transferred once were owned by the Vandalia Coal Co. and, after it went into the hands of a receiver, reverted to the grantees in the present deed. The transaction places such rights in the hands of the coal corporation which is a successor to the old company.

The property of the Pigeon Creek Coal Co. at Boonville, which has been in the hands of L. A. Folsom, receiver, for the past several months, is being put in good shape and it is expected that the mine will start operation in a short time. It is a stripping proposition.

KENTUCKY

To Develop Big Coal Tract.—The Hardaway interests of Virginia have acquired a large tract of undeveloped coal and timber lands lying along Carr's Ford Creek, in Knott County, several miles above Vicco, which they propose opening for development, possibly early next year, according to advices from Whitesburg. Plans are being made for a further extension of the Carr's Fork branch of the Louisville & Nashville Ry. to the property. The property carries the main Hazard coal seam, and two other smaller veins, all workable.

Leslie County to Have Railroad.—Engineers now are locating an important branch line of the Louisville & Nashville Ry. up Middle Fork of the Kentucky River, through Leslie County, which at present has no railroad. Leslie County for years has been considered one of the best coal counties in eastern Kentucky, but development was held up by lack of transportation facilities. Surveying crews have been locating the road for some time. The new line will start near Krypton, on the main line, and will pass up Middle Fork fifty miles or more to a point several miles above Hyden, the county seat.

The Model Coal Co. plant at Harlan, with an appraised value of \$60,000, was sold by John C. Adkins, trustee,

in bankruptcy, on Sept. 27, to L. A. Bowles, of Harlan, for \$18,350. The property was formerly sold for \$12,000 to Caleb Powers, but that sale was never completed.

Rock-Dust Plant Organized.—The Cook Stone Co., Hopkinsville, has established a new stone-pulverizing plant, to reduce limestone rock into dusting material for use as a preventive against fire spread and explosions in soft coal mines. Only a few of the western Kentucky mines have been treated with rock dust.

NEW YORK

O. E. Southard, of the Ford-Southard Coal Co., has been made Buffalo representative of the Eschenbach Coal Co. of Wilkes-Barre, Pa. There will be no change in the management of the soft-coal branch of the business.

OHIO

Holmes-Darst Co. Organized.—All arrangements have been completed for the consolidation as of Nov. 1 of the Bewley-Darst Coal Co. of Knexville, Tenn., and the Holmes Coal Sales Co. Headquarters will be in Cincinnati under the firm style of the Holmes-Darst Coal Co. It is understood that Jake Bewley will leave the company, but otherwise the two personnels will be amalgamated. Through ownership in mines and sales contracts about 3,500,000 tons will be brought under one directing head, making this among the strongest mining and selling organizations in southeastern Kentucky. Calvin Holmes, to whom credit is largely given for engineering the consolidation, started with the Bewley-Darst Co. about twenty years ago.

PENNSYLVANIA

Assessors May Enter Mines.—The Northumberland County commissioners were empowered by a recent ruling of the Northumberland County Court to enter the mines of the Philadelphia & Reading Coal & Iron Co. to obtain data on the value of coal lands, in connection with the triennial assessment. The commissioners will act as a board of taxation. The company refused at the last triennial assessment to permit engineers to enter the mines. Suit was brought by the commissioners about a year ago.

Penalize Slow Pay of Hard-Coal Tax.—Neglect or refusal of anthracite mining companies to furnish the Auditor General with the required information relative to the mining of coal during the state tax period is subject to a 10 per cent penalty, according to the State Department of Justice. An opinion to this effect has just been rendered to J. Lord Rigby, revenue deputy of the Auditor General's Department, by Philip S. Moyer, Deputy Attorney General.

New Pardee Breaker Shaping Up.—Work on the new breaker of Pardee Brothers & Co., near Lattimer, is well under way and the machinery will be installed soon.

The Pennsylvania Coal & Coke Co. and subsidiaries report a deficit for

August of \$20,174 after ordinary taxes, depreciation and depletion, but before federal taxes. This compares with a deficit of \$33,691 in August, 1925.

Old Home Mine Active Again.—The Old Home mine of the Parshall Coal Co., in Fayette County near Uniontown, has resumed operations after being idle more than two years. W. James Parshall, of Uniontown, is president and general manager of the company.

Mines Long Idle Resume.—Two mines in northern Cambria County, closed down for some time due to the depression in the fuel business, have reopened. They are Binder Mine, No. 2, at Carrolltown, and Sterling Mine No. 6, at Bakerton. Several hundred miners will find employment.

Dr. W. S. Blaisdell, of Punxsutawney, formerly associated with Harry Yates, of Buffalo, in the coal-mining business, has sold to the Lindsey Coal Mining Co. his interest in the Williams Run opening, which is producing seven or eight cars a day, and will retire, on account of ill health. He now owns only a small country-bank mine at Anita.

It has been found impossible to keep the Kramer mine, near Punxsutawney, which was operated by the Northwestern Mining Exchange Co., running at a profit, on account of the scarcity of men, only about 100 being obtainable. Therefore the mine has been closed indefinitely.

UTAH

Consumers' Mutual Floats Bonds.—The Consumers' Mutual Coal Co., with properties in Carbon County, has been granted permission by the State Securities Commission to offer for sale \$500,000 of first mortgage 7 per cent bonds.

The United States Fuel Co. has just made the annual awards in its flower and vegetable garden contests. Three cash prizes of \$35, \$25 and \$15 were awarded in each of the three classifications: vegetable gardens, flowers and

lawns. Salaried officials of the company were not eligible to receive prizes, but could enter the contests for honorable mention. A woman and two men, one of them a district judge and the other the county agent, acted as judges.

The United States Fuel Co.'s mine at West Hiawatha, has been closed and the company has opened the Morhland mine, in Emery County, which has a better grade of coal. The miners employed at West Hiawatha have been transferred to Morhland.

The Chesterfield Coal Co. has adopted the scheme of labeling its coal with yellow stickers which show the grade or size the consumer receives.

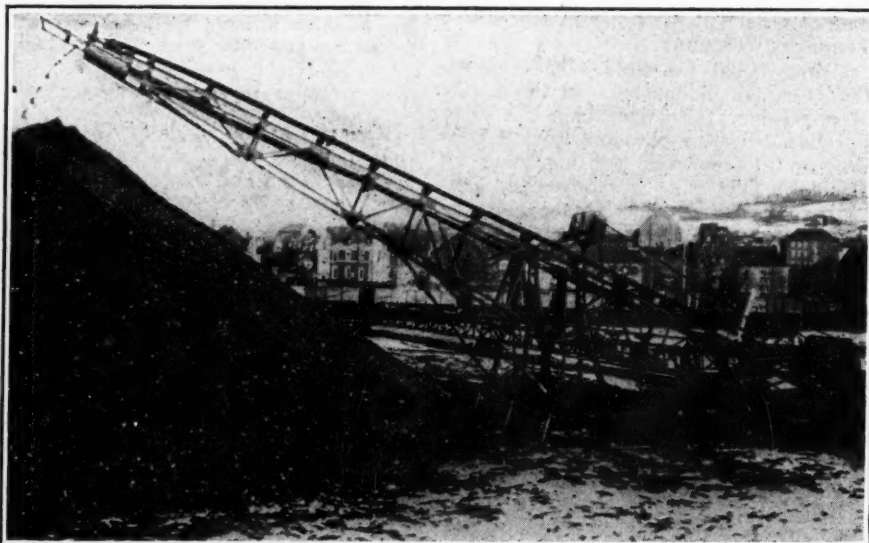
VIRGINIA

Extensive improvements to facilitate operations are now being made by the Great Valley Anthracite Corporation at its McCoy and Belhampton properties on the edge of Pulaski and Montgomery counties. A contract has been awarded for a 1,000-ton capacity washer, and plans have been drawn for a tippie of like capacity, contract for which will be awarded shortly. Track facilities to the mines are to be improved, and substantial buildings erected to provide quarters for the employees.

WEST VIRGINIA

Steel Tippie for Dakota Mine.—The old wooden tippie at the Dakota mine of the Bethlehem Mines Corp., near Fairmont, is being razed to make way for a modern steel structure. Norman A. Elmslie, division superintendent for the company in the Fairmont region, says the new tippie is expected to be up and the mine in operation in about two weeks.

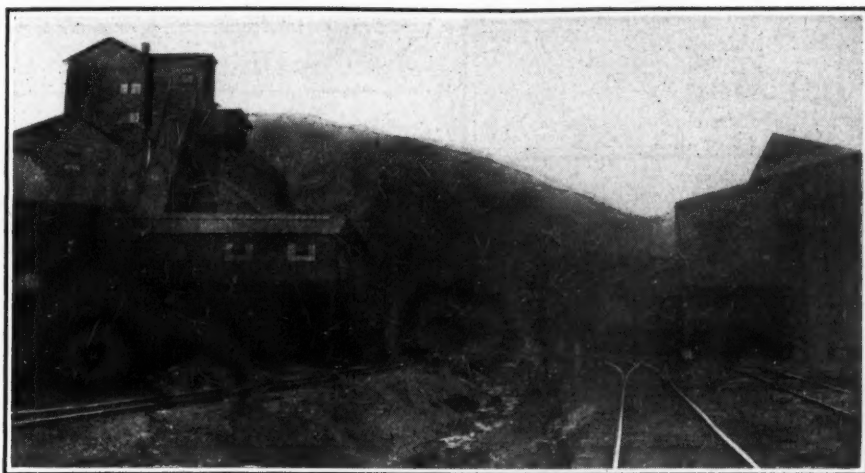
The Lorado Coal Mining Co., an Ohio corporation, with offices in Columbus, Ohio, has filed a certificate by which it is permitted to hold property and do business in West Virginia. R. L. Wildermuth is president of the com-



Keystone View Co.

Coal Mines at Essen, Germany, Stock Coal by Portable Conveyor

Slack is brought by a horizontal conveyor to a portable stacking conveyor, where it is deposited in a long heap, thus doubtless enabling the excess fine coal of the winter trade to be held till the summer, when the demand for domestic sizes is less steady and when slack coal is unequal to the needs of the steam market. Some storage of this kind, where the coal would not fire, might be quite helpful in the United States.



Dry-Cleaning Plant and Wet Washery Close Together

On the left is the tippie and dry-cleaning plant of the American Coal Co., at McComas, W. Va. Across the track on the right is the tippie and washer of the Sagamore mine of the Pocahontas Fuel Co. Both mines are large producers.

pany, which has 20,000 shares of no par value stock and 10,000 shares of preferred stock at \$100 a share. The company, according to the certificate filed, owns all of the property heretofore owned by the Lorain Coal & Dock Co. at Lorado, Logan County. The appraised valuation for taxation is \$117,435.

WYOMING

Under foreclosure proceedings, the Poposia Coal Co. was sold at forced sale at Lander recently for \$294,027. It was purchased by the bond owners. The company is reported to have become involved through the introduction of more equipment than necessary due to stimulation of activity during the World War period when it was under the management of H. O. Barber. Among the principal stockholders are G. R. Hagens and P. J. O'Connor, of Casper, and Fred Noble, of Lander. Under the management of the receiver, the company has been prospering.

CANADA

Shortage of Cape Breton Miners.—Two million tons of Nova Scotia coal will be shipped up the St. Lawrence this year and collieries of the province will be operated full time until Nov. 20, at least, according to J. E. McLurg, vice-president of the British Empire Steel Corporation. This estimate is about 150,000 tons below expectations, said Mr. McLurg, this being due to a shortage of miners in many of the Cape Breton collieries.

August Coke Output High.—Output of coke in Canada during August totaled 165,662 tons, an increase of 5 per cent over the 157,960 tons produced in July, 74 per cent over the 95,397 tons yield in August of a year ago, and only 350 tons less than the record output for the year attained in February. Comparison with the previous month shows that the increase in output was general to all Canada; eastern Canada produced 62,828 tons as against 48,284 tons in July, Ontario ovens yielded 95,097 tons, as compared with 93,165 tons in the previous month and the output in western Canada was 17,737

tons, as against 16,511 tons reported for July.

Receivers Sought.—On Sept. 28 an application was made to the Supreme Court at Halifax, N. S., on behalf of the shareholders of the Nova Scotia Steel & Coal Co. for the appointment of the Eastern Trust Co. and D. H. McDougall as joint receiver-managers of the company. The application was opposed by the British Empire Steel Corporation, of which the Nova Scotia company is subsidiary. The corporation asks for a dissolution of the restraining order preventing the Nova Scotia Coal & Steel Co. from disposing of its assets otherwise than in the ordinary course of business, pending the determination of the application. This is opposed on behalf of the bondholders and a protracted argument is anticipated.

Alberta Has Big Coal Reserves.—The sixth annual report of the Scientific and Industrial Research Council of Alberta includes data furnished by John A. Allan at the request of the Alberta Coal Commission on the available coal supply of the province. Reserves are estimated as follows: Bituminous coal, 36,000,000,000 tons; sub-bituminous coal, 14,400,000,000 tons; lignite, 10,800,000,000 tons, or a total of 61,200,000,000 tons.

Traffic News

Defer Action on New Joint Rates On Coke from Birmingham

Proposals of Southern carriers for new joint rates on coke from the Birmingham (Ala.) district to Michigan and other parts of Central Freight Association territory were rejected by representatives of the Northern carriers at a conference held Sept. 28 with officials of the traffic division of the Interstate Commerce Commission. It was uncertain at the conclusion of the conference whether a new proposal in modified form would be offered by the Southern group or whether shippers in the Birmingham district would file a formal complaint with the Commission

and fight the matter out through its course before that body.

The proposed new rates would have had the effect of substantially reducing the charges on coke shipments from the South to Central Freight Association territory below the combination rates which are now in effect. The proposals were drafted by Southern Carriers of this traffic at the instance of producers in their territory. Northern producers of coke vigorously opposed the proposals on the ground that there is an adequate supply of coke available much closer to the destinations which would have been affected by the proposed joint rates and that the result of lower rates from the South would be to injure their business. In this attitude the Northern producers were supported by the carriers of their own immediate territory. The conference made no progress whatsoever toward an amicable solution of the questions presented.

Governor Asks Northwest Aid For West Virginia Rates

Aid in opposing coal rates termed prejudicial to West Virginia coal was asked by Governor Howard M. Gore of West Virginia in a letter to the governors of five northwestern states last week.

The letter, sent to the Governors of Michigan, Wisconsin, Minnesota and North and South Dakota, called their attention to the effect of rate cases now before the Interstate Commerce Commission on the adequate supply of fuel for consumers in their states and the price they pay.

After referring to the coal shipped in the Lake cargo trade from West Virginia, Kentucky, Virginia and Tennessee, Governor Gore wrote that the Pittsburgh and eastern Ohio districts have asked the Commission "to further increase their freight rates advantage of Southern districts" as a result of their inability to maintain production "because of local conditions aggravated by labor troubles, wage agreements, soaring land prices and high taxation."

Suspends All-Rail Rate Changes On Hard Coal to Tidewater

The Interstate Commerce Commission has suspended the effective date of orders entered last May making changes in the all-rail rates on anthracite from Pennsylvania points to tidewater points in New England and has reopened the case for rehearing. The reopening was in response to petitions by the New Haven and other carriers which desired to introduce new testimony bearing on the order, which is for Fourth Section relief in order to meet water competition.

Approves Lower Coke Rates

Reductions of 13c. per ton in the rates on coke and coke breeze from Buffalo, East Buffalo and Harriet to Clifton Springs, Geneva, Oaks Corners, Phelps and Phelps Jct. and of 12c. from Harriet to Clymer have been approved by the Public Service Commission of New York. The new rates, filed by the New York Central Lines-East, become effective Oct. 29.

Among the Coal Men

C. P. White, chief Economics Division, Bureau of Mines, underwent a major operation at Emergency Hospital, Washington, last week. Three weeks ago he had a minor operation, preparatory for the later operation, from which he rallied splendidly. He will likely be in the hospital a week or ten days more and it will be six weeks or so before he will be able to return to his desk.

Howard N. Eavenson, Pittsburgh engineer, who returned recently from an Alaskan trip, is not at all bullish over the commercial possibilities for Alaskan coal. He stresses the limitations of the home market and to indicate the small amount of coal consumed by railroads, cites the case of one railway over whose line only one passenger train a month is operated. Mr. Eavenson doesn't see a chance of Alaskan coal becoming a real competitor with the product from Washington and British Columbia.

R. J. Fox, of the Green River Fuel Co., Mogg, Ky., visiting the McGill Coal Co. office in Chicago recently, said 1,500 tons are going over the new screens at the mines daily.

A. Halligan has joined the Houston Coal Co. selling staff at Chicago. He formerly was with Cosgrove-Meehan and D. E. McMillan.

E. M. Platt, of the Platt & Brahm Coal Co., Chicago, on his return from a ten days' visit to eastern Kentucky and West Virginia, reported that continued demand for smokeless and high-volatile coals in the East strongly indicated the possibility of higher prices. He declared the operators are highly optimistic and that high-grade coal is scarce.

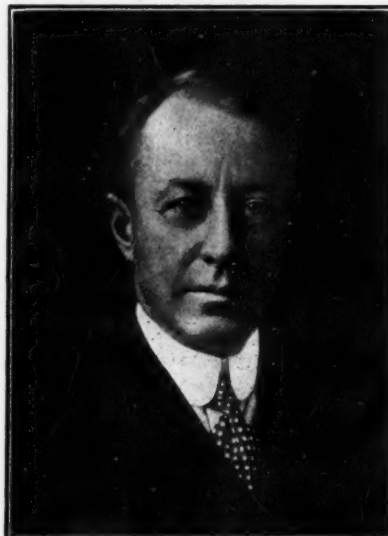
John Laing, president of the Mac-Alpin Coal Co., Charleston, W. Va., arrived in New York Sept. 21, where he was met by his brother, Alexander W. Laing. Mr. Laing had been abroad for several months, spending much of his time in Belgium, where, it is stated, he completely recovered his health.

E. W. Heeberstreet, of Chicago, has taken up his duties as general manager of operations near Welch, W. Va., recently acquired by the Westchester Pocahontas Coal Co., Chicago. The new owner, it is reported, is perfecting plans to install new machinery in the mine in order to increase output from 15,000 to 20,000 tons per month within the next six months. Eventually the plant will produce 25,000 tons a month. The company is headed by J. E. Stearns, of Chicago, who recently purchased the holdings of the Wise Pocahontas Coal Co. at Hensley, McDowell County, W. Va.

W. H. Clingerman, president of the United States Coal & Coke Co., Pittsburgh, Pa., recently headed a party of company officials on a tour of inspection of the company's mines at Lynch, Ky., and in McDowell County, W. Va. Col. Edward O'Toole, general superintendent

of the company's operations, met the party and acted as escort.

Abner M. Harper, of Greensburg, Pa., has been appointed a state mine inspector, according to an announcement by the Department of Labor and Industry, Harrisburg, Pa.



John C. Brydon

John C. Brydon, formerly president of the National Coal Association, recently became a vice-president of Hamilton & Wade, Inc., insurance brokers, 1 Liberty St., New York City. Mr. Brydon, who at one time was president of the Quemahoning Creek Coal Co., Somerset, Pa., forsook the coal-mining industry several years ago.

Ben Davis, of Allison, Fayette County, Pa., has resigned as superintendent of the Allison Nos. 1 and 2 mines of W. J. Rainey, Inc., at that place.

Arthur N. Young, of Orient, Fayette County, Pa., has resigned as superintendent of the Orient mine of the A. M. Byers Co., operated under contract by the Hillman Coal & Coke Co., and expects to locate in the South.

Bernard R. Batty, vice-president of the Ogle Coal Co., Indianapolis, Ind., is recovering at his home in Haverstick Park from burns about the face and hands received in an explosion at his home. He returned after a short time spent in an Indianapolis hospital.

Parke T. Shearer has been appointed assistant sales agent at Syracuse of the Delaware, Lachawanna & Western Coal Co., succeeding H. W. Marshall, resigned.

John M. Taylor, head of the John M. Taylor Coal Co., operators and jobbers, and also head of the Taylor-Williams Coal Co., retailers of Columbus, Ohio, left recently on an extended tour of Europe and England.

L. J. Mellon, has joined the staff of the O'Gara Coal Co., Chicago, as combustion engineer. He comes from the Aero Pulverizing Co., Chicago.

Obituary

C. E. Hutchinson Succumbs To Heart Disease

Death removed a well-known figure in the coal industry of West Virginia on Tuesday night, Sept. 28, when Clyde E. Hutchinson, vice-president of the Hutchinson Coal Co., of Fairmont, died at a hotel in Charleston as the result of an attack of acute indigestion which brought on heart trouble. He was 67 years old. On the day before his death Mr. Hutchinson had consummated arrangements for the purchase of the Thurmond Consolidated Coal Co. for \$670,000.

Mr. Hutchinson had been engaged in the coal business in West Virginia for the last 35 years, opening and developing many mines in different sections of the state. Some of the mines which he opened were later purchased by the Consolidation Coal Co. about 20 years ago. Later he and his associates became interested in several mining properties in southern West Virginia, among them being the Logan Mining Co., the Rich Creek Coal Co. and the Empire Coal Co. which were sold to the West Virginia Coal & Coke Co., when that company also absorbed the Main Island Creek Coal Co., in 1924.

Mr. Hutchinson was vice-president of the Hutchinson Coal Co., his brother, M. L. Hutchinson, being president. Mr. Hutchinson also was a director in the West Virginia Coal & Coke Co., in which he had large holdings. Until a few months ago he was president of the company, but ill-health and the pressure of other business forced him to relinquish that post. He also was extensively interested in banks and other business institutions and in mining properties in Costa Rica.

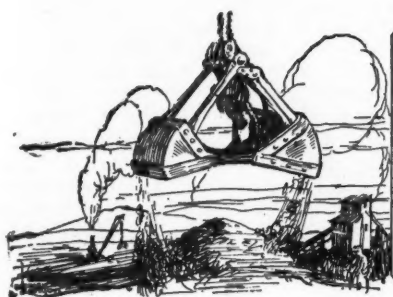
He is survived by his wife and seven sons.

William W. Reed, Sr., one of the pioneer coal operators in the Broad Top field in Bedford County, Pennsylvania, died on Sept. 27, at his home in Dudley. Mr. Reed was born July 24, 1847. Interment was made at Dudley on Sept. 30. He is survived by his wife and a number of children.

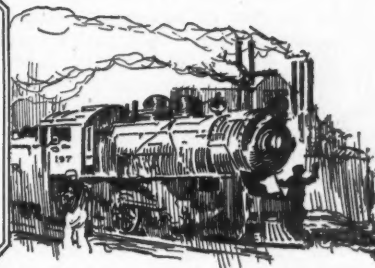
Barney N. Cole, seventy-two, prominent Washington County, (Pa.) coal operator, took his own life at Wellsburg, W. Va., on Sept. 22 with a shotgun, according to police. Cole, who was in Wellsburg on business, in connection with his coal interests at Bethany, W. Va., ended his life after a quarrel with a neighbor, police were told. His wife and two children survive.

Association Activities

The offices of the National Retail Coal Merchants' Association on Oct. 1 were removed from the Transportation Building to the Rust Building, 1,001 Fifteenth St., N. W., Washington, D. C. Joseph E. O'Toole is resident vice-president.



Production And the Market



Upward Trend Still Marks Bituminous Demand; Anthracite Responds to Weather Stimulus

The bituminous industry of the United States enters the last quarter of 1926 on the upgrade. Average realizations are increasing, production is rising and the territorial distribution of these gains shows less unevenness. Developments of the past week, while they brought no major changes, served to emphasize the importance of these favorable factors in the market situation. Despite the minor set-backs in some sections there was a broader demand for coal and a greater interest displayed by large consumers.

The situation, however, is not without its shadows. Export business of an unusual character has been the actuating force behind the improvement that has been growing since last July. Uneasiness lest there be a sudden termination of that business is in evidence. Lake trade, too, is slowing up. If the close of the lake season should synchronize with the disappearance of heavy buying for overseas, a sharp and financially unpleasant reaction easily might ensue.

On the other hand, if the acceleration in production and prices continues at the rate predicted by some observers, transportation and labor may soon intervene as checks. The surplus open-top equipment is dangerously small. A switch from the concentrated lake and export movements to the more diversified domestic distribution—without a decrease in tonnage—would so dilute facilities that a car shortage would be an early actuality.

Labor Situation Uncertain Quantity

Labor, too, is a factor with which the industry must reckon. In some of the districts which have enjoyed the full flood of the export and lake business, surplus labor has disappeared. Operators seeking to reopen mines find it difficult to recruit a working force. South-

ern West Virginia is in the market for more men, eastern Kentucky is watching the situation closely and some Pennsylvania operations are trying to draw labor from other fields. Whether the potential menace of a labor scarcity which would hamper production actually will be unloosed remains to be seen.

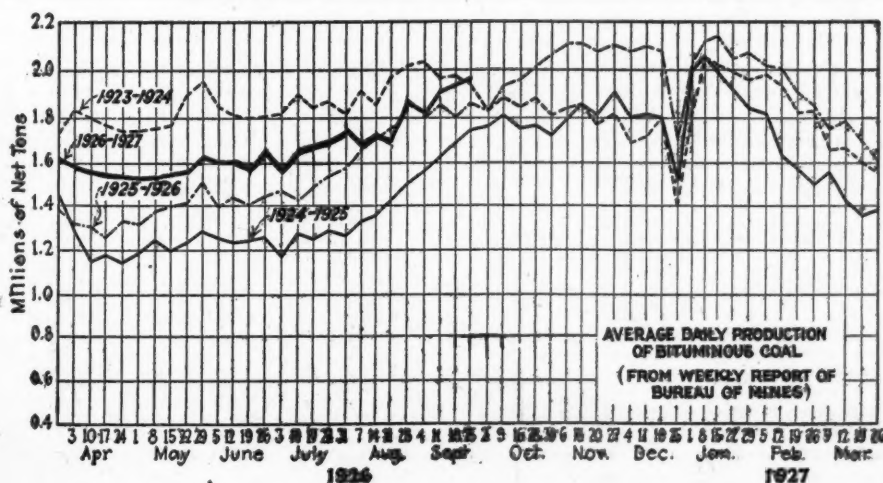
Advances far outnumber reductions in spot quotations on bituminous coal. *Coal Age* Index of spot bituminous prices stood at 188 on Oct. 4 and the corresponding weighted average price was \$2.27. This was an increase of five points and 5c. over the figures for Sept. 27 and the highest level reached since November, 1925. The only declines reported during the week were in southeastern Kentucky slack at Cincinnati and Somerset and Clearfield mine-run at Boston. In no case did the average decrease exceed 5c.

Production Still Climbing

Bituminous output during the week ended Sept. 25 is estimated by the U. S. Bureau of Mines at 11,692,000 net tons. This was the largest weekly tonnage reported since the second week in February. Preliminary figures on last week's loadings point to another high figure. Lake dumpings still play an important part in the production picture. Dumpings during the week ended Oct. 3 were 960,091 tons of cargo and 51,967 tons of vessel fuel, making the season's total to date 22,713,729 tons.

Anthracite production the last week in September was 2,056,000 net tons. Demand for domestic sizes is broadening under weather pressure. Stove still leads in popularity. Nut, long in Philadelphia, is pressing for position in New York. Some concessions still are made on independent buckwheat and rice, but the general position of the steam sizes has improved.

Connellsville coke prices are stronger.



Estimate of Production

(Net Tons)

BITUMINOUS

	1925	1926
Sept. 11.....	9,983,000	10,257,000
Sept. 18 (a).....	10,880,000	11,447,000
Sept. 25 (b).....	11,232,000	11,692,000
Daily average.....	1,872,000	1,949,000
Cal. yr. to date... (c)	358,220,000	397,918,000
Daily av. to date.	1,581,000	1,755,000

ANTHRACITE

Sept. 11.....	5,000	1,690,000
Sept. 18.....	9,000	2,003,000
Sept. 25.....	13,000	2,056,000
Cal. yr. to date... (c)	61,255,000	59,943,000

BEEHIVE COKE

Sept. 18 (a).....	171,000	196,000
Sept. 25 (b).....	180,000	197,000
Cal. yr. to date... (c)	7,051,000	8,857,000

(a) Revised since last report. (b) Subject to revision. (c) Adjusted to equalize number of days in the two years.

Midwestern Buying Disappointing

The volume of buying in Illinois and Indiana fields last week failed to reflect the cold wave of the week preceding. At Chicago there was an active demand for Eastern coals and St. Louis reported a fair business in southern Illinois. Generally speaking, however, business was not up to expectations. Interference with local transportation between consumers and rural retail yard, the aftermath of the heavy rains, was advanced as the major cause for this condition.

Although many of the mines in the southern field still carried a comfortable margin of back orders on 6-in. lump and substantial bookings on egg, "no bills," running into the hundreds on the smaller sizes, was the common lot of all producing fields in the two states. Under such circumstances, there was no talk of raising circular prices on domestic sizes above the \$3.25 base promulgated on Sept. 1.

Most mines operating in the Franklin-Saline-Williamson belt are averaging possibly four days a week. There has been some strengthening in prices on southern Illinois and Indiana Fourth Vein screenings, but steam coals elsewhere in the territory still are weak. General conditions in the Mt. Olive and Duquoin-Jackson districts showed no material change. In the Standard field, screenings, if anything, were weaker, but lump was slightly stronger and working time was better.

Opposition to Prices Growing

Midwestern operators derive some satisfaction out of the buyers' opposition to increasing prices on Eastern coals, feeling that opposition would result in more liberal purchases in Illinois and Indiana within a short time. Pocahontas lump and egg, quoted at \$5.50@5.6 a fortnight ago, slipped to \$5@5.25 last week. Mine-run, however, advanced to \$2.75@3.10. Demand for anthracite was steady, but by no

means exceptional. West of the Mississippi, the only noteworthy change was a heavier movement of central Illinois coals because of high-water conditions at some of the Kansas mines.

Kentucky again reported a broader market and a tendency toward still higher prices. Weather has further stimulated domestic demand and also added to the industrial load. Part of the movement toward higher prices comes from producers so well booked up that they are not seeking business. The lake trade, retail and general steam buying all contribute to pushing up production in eastern Kentucky, where the threat of a car shortage is causing some concern.

Western Kentucky is enjoying a new stability in quotations. The minimum on eastern Kentucky block in the Louisville market is \$3, with special coals quoted up to \$4. Lump and egg are \$2.25@2.75; nut, \$2@2.25; mine-run, \$1.60@2, and slack, firm at \$1.25 up. In the western section, the general min-

Current Quotations—Spot Prices, Bituminous Coal—Net Tons, F.O.B. Mines

Low-Volatile, Eastern		Market Quoted	Oct. 5 1925	Sept. 20 1926	Sept. 27 1926	Oct. 4 1926†
Smokeless lump.....	Columbus.....	\$4.60	\$4.75	\$5.10	\$5.00@5.50	
Smokeless mine run.....	Columbus.....	2.55	2.55	2.55	2.50@2.75	
Smokeless screenings.....	Columbus.....	1.50	1.40	1.40	1.35@1.50	
Smokeless lump.....	Chicago.....	4.10	5.75	5.75	6.00@5.25	
Smokeless mine run.....	Chicago.....	2.10	2.60	2.75	2.75@3.00	
Smokeless lump.....	Cincinnati.....	4.35	4.85	4.85	4.50@5.50	
Smokeless mine run.....	Cincinnati.....	2.35	2.85	2.85	2.75@3.00	
Smokeless screenings.....	Cincinnati.....	2.00	1.85	1.85	2.00@2.50	
*Smokeless mine run.....	Boston.....	4.85	5.55	5.85	6.00	
Clearfield mine run.....	Boston.....	1.85	2.35	2.45	2.10@2.75	
Cambridge mine run.....	Boston.....	2.15	2.50	2.60	2.25@3.00	
Somerset mine run.....	Boston.....	2.00	1.95	2.05	1.90@2.15	
Pool 1 (Navy Standard).....	New York.....	2.85	2.55	2.60	2.75@3.00	
Pool 1 (Navy Standard).....	Philadelphia.....	2.65	2.65	2.70	2.65@2.85	
Pool 1 (Navy Standard).....	Baltimore.....	2.30	2.20	2.25	2.20@2.30	
Pool 9 (Super. Low Vol.).....	New York.....	2.20	2.05	2.10	2.25@2.50	
Pool 9 (Super. Low Vol.).....	Philadelphia.....	1.95	2.10	2.20	2.15@2.40	
Pool 9 (Super. Low Vol.).....	Baltimore.....	2.05	1.95	1.95	1.95@2.00	
Pool 10 (H.Gr.Low Vol.).....	New York.....	2.00	1.85	1.90	1.85@2.25	
Pool 10 (H.Gr.Low Vol.).....	Philadelphia.....	1.85	1.85	1.90	1.90@2.10	
Pool 10 (H.Gr.Low Vol.).....	Baltimore.....	1.90	1.80	1.85	1.85@1.90	
Pool 11 (Low Vol.).....	New York.....	1.80	1.65	1.80	1.75@2.10	
Pool 11 (Low Vol.).....	Philadelphia.....	1.70	1.55	1.70	1.75@1.90	
Pool 11 (Low Vol.).....	Baltimore.....	1.70	1.75	1.80	1.75@1.85	
High-Volatile, Eastern		Market Quoted	Oct. 5 1925	Sept. 20 1926	Sept. 27 1926	Oct. 4 1926†
Pool 54-64 (Gas and St.).....	New York.....	1.55	1.45	1.45	1.50@1.75	
Pool 54-64 (Gas and St.).....	Philadelphia.....	1.60	1.60	1.65	1.90@2.10	
Pool 54-64 (Gas and St.).....	Baltimore.....	1.65	1.70	1.85	1.80@1.95	
Pittsburgh sc'd gas.....	Pittsburgh.....	2.50	2.40	2.40	2.50@2.60	
Pittsburgh gas mine run.....	Pittsburgh.....	2.15	2.10	2.10	2.20@2.30	
Pittsburgh mine run (St.).....	Pittsburgh.....	2.05	2.00	2.00	2.00@2.15	
Pittsburgh slack (Gas).....	Pittsburgh.....	1.55	1.40	1.40	1.35@1.45	
Kanawha lump.....	Columbus.....	2.60	2.75	2.75	2.50@3.00	
Kanawha mine run.....	Columbus.....	1.70	1.70	1.85	1.75@2.15	
Kanawha screenings.....	Columbus.....	1.30	1.15	1.15	1.10@1.25	
W. Va. lump.....	Cincinnati.....	2.60	2.75	2.60	2.75@3.50	
W. Va. gas mine run.....	Cincinnati.....	1.60	1.80	1.85	1.75@2.00	
W. Va. steam mine run.....	Cincinnati.....	1.55	1.70	1.65	1.60@1.75	
W. Va. screenings.....	Cincinnati.....	1.25	1.30	1.15	1.00@1.35	
Hooking lump.....	Columbus.....	2.70	2.40	2.40	2.50@2.75	
Hooking mine run.....	Columbus.....	1.65	1.55	1.55	1.40@1.75	
Hooking screenings.....	Columbus.....	1.30	1.20	1.20	1.15@1.25	
Pitts. No. 8 lump.....	Cleveland.....	2.35	2.15	2.20	2.00@2.70	
Pitts. No. 8 mine run.....	Cleveland.....	1.85	1.75	1.75	1.80@1.85	
Pitts. No. 8 screenings.....	Cleveland.....	1.35	1.25	1.25	1.25@1.40	
Midwest		Market Quoted	Oct. 5 1925	Sept. 20 1926	Sept. 27 1926	Oct. 4 1926†
Franklin, Ill. lump.....	Chicago.....	\$3.25	\$3.25	\$3.25	\$3.25	
Franklin, Ill. mine run.....	Chicago.....	2.35	2.40	2.40	2.35@2.50	
Franklin, Ill. screenings.....	Chicago.....	1.60	1.50	1.50	1.40@1.65	
Central, Ill. lump.....	Chicago.....	2.85	2.60	2.60	2.50@2.75	
Central, Ill. mine run.....	Chicago.....	2.10	2.20	2.20	2.15@2.25	
Central, Ill. screenings.....	Chicago.....	1.55	1.40	1.40	1.30@1.50	
Ind. 4th Vein lump.....	Chicago.....	3.10	2.85	2.85	2.75@3.00	
Ind. 4th Vein mine run.....	Chicago.....	2.35	2.25	2.25	2.15@2.35	
Ind. 4th Vein screenings.....	Chicago.....	1.60	1.45	1.45	1.30@1.60	
Ind. 5th Vein lump.....	Chicago.....	2.35	2.40	2.40	2.25@2.60	
Ind. 5th Vein mine run.....	Chicago.....	1.95	2.00	2.00	1.90@2.10	
Ind. 5th Vein screenings.....	Chicago.....	1.40	1.25	1.05	1.00@1.15	
Mt. Olive lump.....	St. Louis.....	2.50	2.60	2.60	2.50@2.75	
Mt. Olive mine run.....	St. Louis.....	2.00	2.25	2.25	2.25	
Mt. Olive screenings.....	St. Louis.....	1.75	1.55	1.25	1.25	
Standard lump.....	St. Louis.....	2.25	2.15	2.15	2.10@2.25	
Standard mine run.....	St. Louis.....	1.80	1.80	1.80	1.75@1.85	
Standard screenings.....	St. Louis.....	1.15	1.10	1.05	1.00@1.10	
West Ky. block.....	Louisville.....	1.90	1.90	2.05	2.25@2.50	
West Ky. mine run.....	Louisville.....	1.35	1.25	1.30	1.15@1.50	
West Ky. screenings.....	Louisville.....	.95	.85	.85	.85@1.05	
West Ky. block.....	Chicago.....	2.05	1.85	2.10	2.00@2.25	
West Ky. mine run.....	Chicago.....	1.25	1.15	1.15	1.00@1.35	
South and Southwest		Market Quoted	Oct. 5 1925	Sept. 20 1926	Sept. 27 1926	Oct. 4 1926†
Big Seam lump.....	Birmingham.....	2.25	2.25	2.35	2.25@2.50	
Big Seam mine run.....	Birmingham.....	1.80	1.85	1.85	1.75@2.00	
Big Seam (washed).....	Birmingham.....	1.85	2.00	2.05	1.85@2.00	
S. E. Ky. block.....	Chicago.....	3.00	2.85	2.85	2.75@3.00	
S. E. Ky. mine run.....	Chicago.....	1.95	1.75	1.75	1.60@1.90	
S. E. Ky. block.....	Louisville.....	2.60	2.75	3.00	3.00@3.75	
S. E. Ky. mine run.....	Louisville.....	1.60	1.65	1.65	1.60@2.00	
S. E. Ky. screenings.....	Louisville.....	1.20	1.15	1.15	1.25@1.50	
S. E. Ky. block.....	Cincinnati.....	2.85	2.85	2.85	3.00@4.50	
S. E. Ky. mine run.....	Cincinnati.....	1.60	1.75	1.80	1.60@2.00	
S. E. Ky. screenings.....	Cincinnati.....	1.25	1.30	1.20	.90@1.40	
Kansas lump.....	Kansas City.....	4.50	4.60	4.60	4.50@4.75	
Kansas mine run.....	Kansas City.....	3.00	3.00	3.00	3.00	
Kansas screenings.....	Kansas City.....	2.40	2.35	2.35	2.35	

* Gross tons, f.o.b. vessel, Hampton Roads

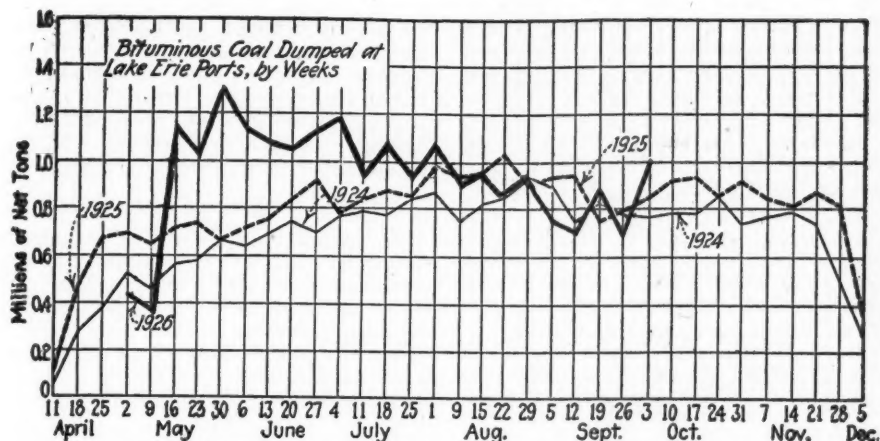
† Advances over previous week shown in heavy type, declines in italics

Current Quotations—Spot Prices, Anthracite—Gross Tons, F.O.B. Mines

		Market Quoted	Freight Rates	Oct. 5, 1925		Sept. 27, 1926		Oct. 4, 1926†	
				Independent	Company	Independent	Company	Independent	Company
Broken.....	New York.....	\$2.34			\$8.20@8.95		\$8.50@9.25		\$8.50@9.25
Broken.....	Philadelphia.....	2.39					8.50@9.15		8.50@9.15
Egg.....	New York.....	2.34		\$14.00@15.00	8.65@8.90	9.00@9.25	8.75@9.25	9.00@9.25	8.75@9.25
Egg.....	Philadelphia.....	2.39				9.15@9.25	9.00@9.15	9.15@9.25	9.00@9.15
Egg.....	Chicago.....	5.06		9.50@10.00	8.03@8.28	8.14	8.13	8.14	8.13
Stove.....	New York.....	2.34		14.00@15.00	9.15@9.40	9.50@9.85	9.25@9.50	9.60@9.85	9.25@9.50
Stove.....	Philadelphia.....	2.39				9.60@10.20	9.35@9.50	9.60@10.20	9.35@9.50
Stove.....	Chicago.....	5.06		10.00@11.00	8.48@8.80	8.59	8.33@8.58	8.59	8.33@8.58
Chestnut.....	New York.....	2.34		14.00@15.00	8.65@8.95	9.15@9.45	8.75@9.15	9.20@9.50	8.75@9.15
Chestnut.....	Philadelphia.....	2.39				9.00@9.75	9.00@9.15	9.00@9.75	9.00@9.15
Chestnut.....	Chicago.....	5.06		10.00@11.00	8.50@8.75	8.39	8.33@8.53	8.39	8.33@8.53
Pea.....	New York.....	2.22		6.50@7.00	5.00@6.00	6.00@6.75	6.00@6.50	6.00@6.75	6.00@6.50
Pea.....	Philadelphia.....	2.14			5.00@6.25	6.30@6.75	6.00@6.50	6.30@6.75	6.00@6.50
Pea.....	Chicago.....	4.79		5.50@6.00	5.50@6.00	6.03	6.10	6.03	6.10
Buckwheat No. 1.....	New York.....	2.22		2.60@3.00	2.50@2.60	2.15@2.50	2.50@3.50	2.25@2.50	2.50@3.50
Buckwheat No. 1.....	Philadelphia.....	2.14			2.50@2.60	2.00@2.50	2.25@2.75	2.00@2.50	2.25@2.75
Rice.....	New York.....	2.22			2.25	1.50@2.00	2.00@2.25	1.90@2.00	2.00@2.25
Barley.....	Philadelphia.....	2.14			2.25	1.65@2.00	1.75@2.25	1.65@2.00	1.75@2.25
Barley.....	New York.....	2.22			1.50	1.25@1.50	1.50@2.25	1.25@1.50	1.50@2.25
Barley.....	Philadelphia.....	2.14			1.50	1.50@1.75	1.50@1.75	1.50@1.75	1.50@1.75
Barley.....	New York.....	2.22			1.60	1.40@1.60	2.00	1.40@1.65	2.00

* Net tons, f.o.b. mines. † Advances over previous week shown in heavy type; declines in italics.

† Quotations withdrawn because of strike which started Sept. 1, 1925.



imum on block is \$2.25, but some coal may be had at \$2. The asking price on lump and egg is \$2; nut, \$1.60; mine-run, \$1.15@1.50; screenings, 85c. @ \$1.05.

Dock Situation Healthy

The situation at the Head of the Lakes continues healthy. Advance bookings are heavy, current shipments large. Both retail and industrial buyers now are more willing to cover their requirements. The cold wave directed the consumer's attention to his low stocks and immediate buying, therefore, has been on a much more liberal scale. Anthracite is moving freely and docks now estimate they will handle approximately 1,100,000 tons of hard coal this season. Pocahontas lump and egg command a minimum of \$7.50, with one dock asking \$8.

Consumer buying at the Twin Cities has been fairly well distributed over the different grades of coal, with many of the substitutes for anthracite freely taken because of the lower prices asked for such fuels. Industrial buying, too, is expanding. Both all-rail and dock prices are well maintained. Cheerfulness reigns at the Milwaukee docks. Anthracite demand has been increasing rapidly and receipts appear ample for all requirements.

Southwestern domestic demand experienced a marked revival last week in which Kansas, Arkansas, Oklahoma and Colorado participated. Prices were firm. While \$4.50 still is the general basis for Cherokee shaft lump, at least one shipper is asking \$4.75 and several others are accepting orders subject to price at time of shipment. Most of the Arkansas semi-anthracite brings \$6, with Paris lump \$6.50. Kansas screenings are firm at \$2.35 and there are few "no bills" in the field.

Colorado Active; Utah Stagnant

Colorado mines are averaging 62 per cent of capacity. Orders for domestic sizes are increasing and steam business supports the offerings of the smaller coal. Prices are unchanged. Kemmerer-Rock Springs lump is steady at \$4.50; nut, \$3.75; slack, \$1.50@1.75. Utah mines are not averaging 50 per cent running time as a result of the slow domestic buying. Industrial demand is fair. There is no complaint on the score of labor or transportation.

The spot smokeless market at Cincinnati is a fluctuating quantity. Circular prices for October delivery show lump and egg at \$4.50@5, with book-

ings extremely heavy. Spot bids are 50c. to \$1 over the contract market. Slack is tighter and some sales of small lots have been made at \$2.50, with \$2.25 not infrequent. Mine-run quotations, on the other hand, still swing between \$2.75@3. Market observers foresee no break while lake shipments and overseas movement continue strong.

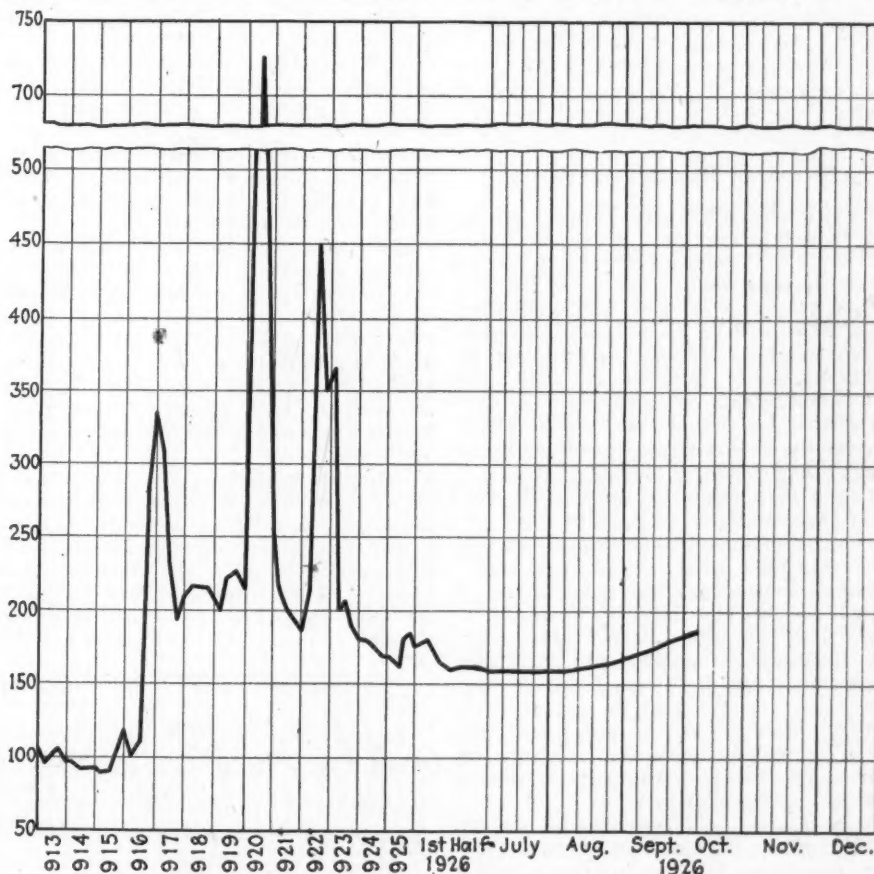
The high-volatiles trail the smokeless market, but the price changes are less varied and less rapid. Quality coals which can compete with the low-volatiles in the general industrial market have the edge in prices, with Jellicoes, Elkhorns and Coal Rivers in the lead. Some high-volatile block is selling at

\$4.50 and little below \$3.50; 4-in. splints range between \$3.75 and \$4. Coking and gas slack brings as high as \$1.40; ordinary steam coal as low as 90c.

Coal Movement Increases

Movement of coal through the Cincinnati gateway showed an increase of 323 cars over the preceding week, but was 392 cars less than during the week ended Oct. 5, 1925. All of the increase over the preceding week was due to heavier loadings off the Chesapeake & Ohio; other lines reported decreased interchange. Movement of empties dropped 2,085 cars, largely due to a falling off in the return of empty open-top equipment to the mines. The price on prepared sizes of smokeless at retail in Cincinnati has been boosted to \$10, with mine-run \$6.75@7; bituminous lump is \$7; slack, \$4@4.50.

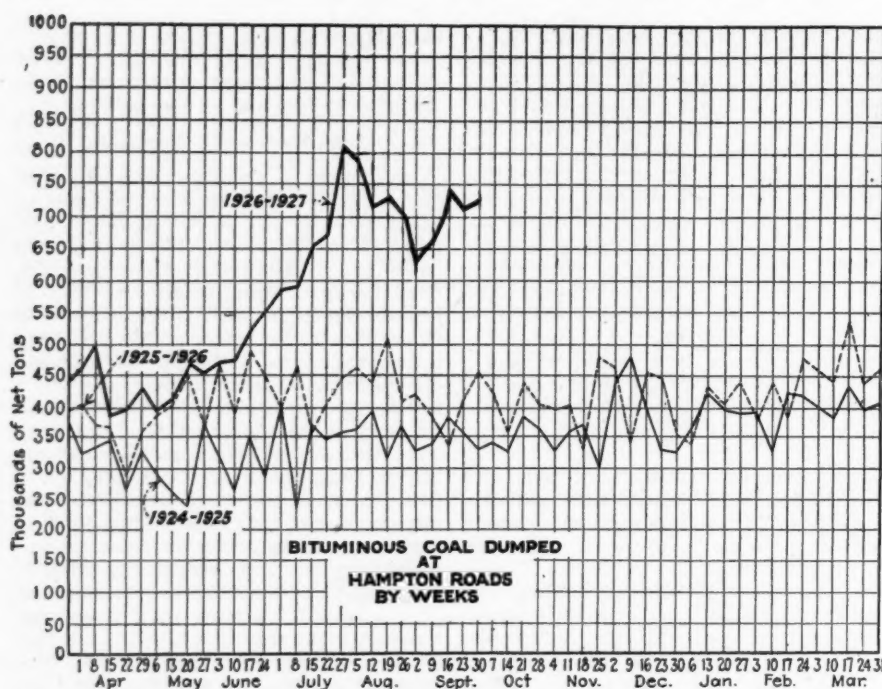
Central Ohio domestic trade is approaching the boom stage, according to opinion at Columbus, but the steam side of the market shows more moderate and spotty improvement. The overflow of retail orders is bringing more Ohio mines into operation and Hocking lump has advanced to \$2.50@2.75. Railroads and public utilities are placing coal in storage, but other industrial consumers appear indifferent on the question of adequate reserve stocks. Southern Ohio production has moved up to 30 to 35 per cent of capacity.



Coal Age Index of Spot Prices of Bituminous Coal F.O.B. Mines

	Oct. 4	Sept. 27	Sept. 20	Sept. 13	1925	1924
Index	188	183	181	176	175	171
Weighted average price	\$2.27	\$2.22	\$2.19	\$2.13	\$2.11	\$2.07

This diagram shows the relative, not the actual, prices on fourteen coals, representative of nearly 90 per cent of the bituminous output of the United States, weighted first with respect to the proportions each of slack, prepared and run-of-mine normally shipped, and second, with respect to the tonnage of each normally produced. The average thus obtained was compared with the average for the twelve months ended June, 1914, as 100, after the manner adopted in the report on "Prices of Coal and Coke: 1913-1918," published by the Geological Survey and the War Industries Board.



Considerable improvement was shown in the market tone in northern Ohio. Demand at Cleveland was stronger, pushing screenings to \$1.25@1.40; mine-run, \$1.80@1.85 and lump to \$2@2.70, as compared with \$1.20@1.30 on slack, \$1.70@1.80 on mine-run and \$1.90@2.50 on prepared coal the preceding week. Production in the No. 8 field during the week ended Sept. 25 approximated 276,000 tons, a gain of 12,000 tons and the largest weekly output recorded in several months.

Pittsburgh Has Buying Flurry

A brief buying flurry brought on by purchases to complete export cargoes excited the Pittsburgh district the forepart of last week. Up to \$2.60 was asked for screened gas, but on Saturday it was hard to obtain \$2.25 and \$2.15 was bid. During the flurry up to \$2.25—possibly \$2.35—was paid for Fairmont steam mine-run, which now is offered for October delivery at \$1.75. Under the export buying pressure, ordinary steam business shifted to the Panhandle, with mine-run up to 5 to 10c. and three-quarter lump, 25 to 30c.

Central Pennsylvania prices declined 5 to 15c. last week. Production, however, is increasing, and the number of "no bills" in the field has dropped to less than 700 cars. Pool 1 was quoted at \$2.60@2.90; pool 71, \$2.30@2.50; pool 9, \$2.15@2.25; pool 10, \$1.85@2; pool 11, \$1.70@1.75 and pool 18, \$1.65. More mines are reopening. Car distribution continues on a 100 per cent basis, but surplus equipment is falling off at a dangerous rate.

Quotations on high-volatile coal in the Buffalo market are stronger, although buyers still try to force a reduction by withholding orders. These tactics, however, appear less successful than was the case a few weeks back. Sellers ask \$1.75@1.90 for Fairmont lump, \$1.50@1.60 for mine-run and \$1.25@1.40 for slack. Youghiogheny gas lump is held at \$2.75@3; slack, \$1.30@1.50; Allegheny Valley mine-run, \$1.70@1.80. These quotations represent advances of 15 to 50c. on

mine-run and lump prices and a decline of a nickel on Fairmont slack.

Navy Standard Holds Gain

Navy Standard coal on cars at Boston last week held to the \$7 price touched the week preceding, but buyers, hoping for an early termination of the British strike, placed few orders. At Providence one private pocket was demanding \$7.50—with little success. Most of the coal now moving from the Virginia piers, where spot price ideas are as firm as ever, is upon contracts or old orders. It does not seem likely, therefore, that there will be any sudden drop in the current quotations.

There was no material change in the volume of all-rail tonnage moving to the New England market. Spot prices on Clearfields and Somersets, however, weakened and Cambria coals could do no better than hold their own. Clearfield dropped to \$2.10@2.75 and Somerset mine-run to \$1.90@2.15, as against \$2.15@2.75 and \$2@2.15 the preceding week.

Indications point to a runaway market at New York. With the West taking its share, the railroads actively seeking tonnage and export demand active, little choice in coals is left the ordinary spot buyer. Competition between carriers has compelled some of the smaller roads to offer up to \$2.25 for tonnage. Little

free coal is running to the New York piers and the spot buyer who wants to increase his orders finds it difficult to pick up free tonnage. Broad Top mine-run was quoted late last week at \$2.75; Ligionier at \$1.60; Bessemer, \$2.40; three-quarter Bessemer lump, \$2.70.

Smaller Consumers More Anxious

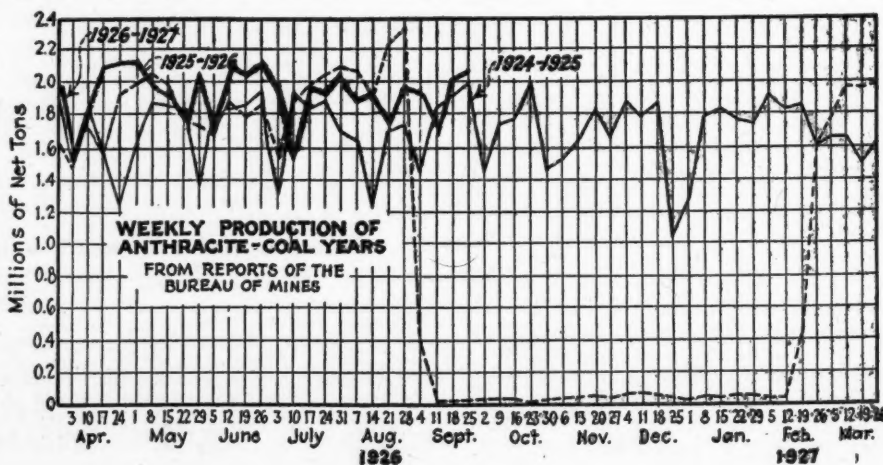
The smaller industrial consumers buying in the Philadelphia market show increasing anxiety over supplies as orders are not filled with the customary dispatch. Railroads are demanding their full quotas notwithstanding the fact that they are carrying liberal stocks in reserve storage. Prices for all grades are hardening, with the high-volatiles leading in the actual increases. Export trading has slowed up somewhat until the developments in the British situation are less obscure.

A more lively inquiry for local and inland deliveries has developed in the Baltimore market, but export shipments still command the major share of attention. Procrastinating domestic buyers, however, find it increasingly difficult to secure shipments of the higher grade coals although actual quotations reflect this condition but slightly. Export clearance from Sept. 1 to Sept. 23 totaled 608,424 gross tons. Charter rates touched \$7.20 last week.

Semi-activity characterizes the situation in the Birmingham district. Higher grade coals find a ready market, medium grades move without sacrifice of values. Contract shipments are heavy and there has been some additional tonnage ordered forward for storage. Storage buying, however, is not general. There has been no material change in the volume of domestic coal rolling. Prices, however, were advanced on Oct. 1, making Cahaba lump \$4.75@5.25; Black Creek, \$4.75@5; Straven, \$5.50 Dogwood, \$5.75 and Montevallo-Aldrich, \$6. Coke demand is strong and the spread in domestic quotations has been eliminated by the disappearance of minimum quotations.

New York Anthracite Active

The anthracite trade at New York is active. Independent prices on domestic sizes are stronger and further advances are forecast. Canadian buying has increased as the result of the shutting off of importations of Walsh coals. Chestnut is pressing stove for popularity, although the latter still is the favorite. The steam sizes, too, are stronger, with No. 1 buckwheat most



Car Loadings and Supply

	Cars Loaded—	
	All Cars	Coal Cars
Week ended Sept. 25, 1926.....	1,182,940	211,722
Week ended Sept. 18, 1926.....	1,187,011	206,638
Week ended Sept. 26, 1925.....	1,120,645	178,463
Week ended Sept. 19, 1925.....	1,098,627	171,925

	Surplus Cars—		Car Shortages—	
	All Cars	Coal Cars	All Cars	Coal Cars
Sept. 8, 1926.....	141,096	33,039		
Aug. 31, 1926.....	161,478	38,967		
Sept. 7, 1925.....	146,998	43,289		

in demand. The better grades are bringing full company circular.

Weather Helps Philadelphia

As at New York, inclement weather last week caused a rush of consumer buying which was reflected in heavier ordering by the retailers. Company shippers report an active demand for all domestic sizes, with stove and pea leading. Independents still are anxious to book nut and, in some cases, are using stove as a bait. Improvement is noted in the steam market, but some buckwheat is going into storage. Independent shippers will make concessions on both rice and buckwheat. Barley is the strongest of the junior sizes.

Weather stimulated small-lot business at Baltimore. The spring price basis continues on retail deliveries, but advancing independent quotations may force an early 25c. increase. Seasonal activity also has come to the New England anthracite trade and retailers are pressing for delivery of company coal. Independent stove finds a ready market at \$10.25 and pea at \$6.25@ \$6.50. The local trade at Buffalo is seasonably active. Lake loadings during the week ended Sept. 30 increased to 60,100 net tons, of which 35,600 tons cleared for Superior and Duluth, 14,700 tons for Milwaukee, 6,800 tons for Chicago and 3,000 tons for Fort William.

Coal Outlet Strengthens Coke

A broader market for raw coal is strengthening the spot market in Connellsville coke. The actual spot move-

ment of the latter fuel, however, is light and there is little new buying on contract. Free furnace coke readily commands \$3.50 and there is not much tonnage available. Spot foundry has advanced to \$4.25@ \$4.75—the first change in weeks. The labor market is tight because many men have drifted to adjacent coal fields.

Coke output in the Connellsville and Lower Connellsville region showed a net increase of 4,480 tons during the week ended Sept. 25, according to the Connellsville *Courier*. Furnace-oven output was 65,600 tons, an increase of 1,900 tons over the preceding week. Merchant-oven output was 75,090 tons, an increase of 2,580 tons.

Hampton Roads Coal Traffic Hovers Near Record Level

Hampton Roads coal piers dumped 2,710,992 tons of coal during September. This is the second highest monthly figure in history, falling short by 52,021 tons of the high figure of August, which established the record.

The Norfolk & Western piers, with a total of 1,107,815 tons for September, broke all records for a single pier. These terminals held the record previously with a little over 1,068,000 tons. The Virginian piers dumped 694,301 tons in September, while the Chesapeake & Ohio terminals accounted for 908,876 tons.

Anthracite Circular Prices For October at New York

(Per Gross Ton f.o.b. Mines)

	Broken	Egg	Stove	Chest-nut	Pea
Lehigh & Wilkes-Barre Coal Co.	\$8.25	\$8.75	\$9.25	\$8.75	\$6.00
D. L. & W. Coal Co.	8.25	8.75	9.25	8.75	6.50
Phila. & Reading Coal & Iron Co.	9.15	9.15	9.40	9.15	6.50
Lehigh Valley Coal Sales Co.	8.50	9.00	9.35	9.00	6.00
Hudson Coal Co.	9.00	9.00	9.35	9.00	6.00
Lehigh Coal & Navigation Co.	9.25	9.25	9.50	9.10	6.35
M. A. Hanna Co.	9.00	9.25	9.60	9.25	6.50
Buckwheat No. 1.	\$2.50	@ \$3;	rice, \$2 @	\$2.25;	
and barley,	\$1.50@	\$1.75.			

Would Cancel Right of Way To D. & R. G. W.

The government is seeking an appeal in the federal court at Denver to have the decision of Judge Tillman D. Johnson, federal judge for Utah, set aside in the Salina Canyon right-of-way case. Suit has been brought to cancel a right of way granted the Denver & Rio Grande Western R.R. to build a railroad to tap the rich deposits of coal of that section, the government contending that the railroad was not taking any steps to construct the road. The permit was granted before the world war and under the law the company was required to commence construction within five years.

The railroad company contended that it had been under the control of the Director General of Railroads, appointed by the government itself, and subsequently was placed in the hands of a receiver under control of the federal court of Colorado. At the trial the railroad company insisted that it had serious intentions of building the railroad in question and begged that it not be denied the right-of-way by the Salt Lake federal court because the Director General of Railroads and the federal court of Colorado failed to comply with the law. The government appeal is against the decision of the Salt Lake City federal court, which ruled in favor of the railroad.

Crichton to Discuss Drainage

The American Society of Civil Engineers will hold its autumn meeting in Philadelphia, Oct. 9. In connection with this meeting the Sanitary Engineering Division will have a session on the morning of Oct. 7 devoted to the disposal of industrial waste. Papers will be presented by representatives of industry, including leather tanning, pulp and paper making, oil refining and coal mining. Andrew Crichton, of Johnstown, Pa., will present the paper on coal-mine drainage.

Byproduct and Beehive Coke Produced in the United States, 1925

(Exclusive of Screenings and Breeze)

State	Byproduct				Beehive				Total	
	Ovens Built	Ovens Building	Coal Used (Net Tons)	Coke Produced (Net Tons)	Value of Coke At Ovens	Ovens Built	Coal Used (Net Tons)	Coke Produced (Net Tons)	Value of Coke At Ovens	Value of Coke At Ovens
Alabama.....	1,276	...	6,516,689	4,582,153	\$16,347,971	4,961	137,106	88,328	\$453,870	\$4,670,481
Colorado.....	120	...	706,948	489,657	*	1,681	239,004	154,824	*	\$16,801,841
Georgia.....	...	...	...	...	...	151	8,651	4,925	38,464	644,481
Illinois.....	849	...	4,224,420	3,011,497	22,568,845	...	...	...	...	4,925
Indiana.....	1,177	212	6,866,855	5,141,940	36,635,104	...	...	...	...	3,011,497
Kentucky.....	108	...	...	...	...	795	...	...	...	22,568,845
Maryland.....	300	...	1,383,344	1,019,209	*	...	...	...	...	5,141,940
Massachusetts.....	419	...	797,699	535,302	*	...	...	...	...	36,635,104
Michigan.....	420	2	2,450,275	1,751,118	11,708,519	...	...	...	...	*
Minnesota.....	220	...	791,992	518,355	4,992,024	...	...	...	...	1,019,209
Missouri.....	64	...	...	...	...	...	...	...	...	535,302
New Jersey.....	206	...	1,242,275	903,997	*	...	...	...	...	1,751,118
New Mexico.....	...	...	...	...	...	1,030	...	...	...	11,708,519
New York.....	506	155	3,074,465	2,219,409	12,968,066	...	...	...	...	4,992,024
Ohio.....	1,689	...	10,336,068	7,105,129	34,190,691	...	...	...	...	*
Oklahoma.....	...	...	...	...	...	204	240,828	156,058	*	7,261,187
Pennsylvania.....	3,220	60	14,679,836	9,853,262	34,518,863	34,668	14,572,282	9,574,341	41,875,615	19,427,603
Rhode Island.....	40	...	...	...	...	...	...	...	...	76,394,478
Tennessee.....	24	...	125,860	88,879	471,059	1,675	200,373	127,609	690,041	216,488
Utah.....	33	...	316,285	168,150	*	819	247,473	146,009	1,240,256	1,161,100
Virginia.....	...	...	...	...	...	3,124	661,193	421,691	1,901,623	421,691
Washington.....	20	...	68,655	40,757	289,782	332	62,644	38,500	327,483	79,257
West Virginia.....	311	...	1,526,820	1,055,992	4,479,866	7,847	804,055	490,040	2,168,879	1,546,032
Wisconsin.....	288	...	...	...	...	...	...	...	...	*
Combined states.....	...	...	2,001,165	1,427,353	10,555,681	...	248,972	152,459	1,004,350	1,579,812
Undistributed.....	...	...	...	...	21,101,100	...	...	...	2,030,985	11,560,031
	11,290	429	57,109,651	39,912,159	\$210,827,571	57,587	17,422,581	11,354,784	51,731,566	\$262,559,137

*Included under "Undistributed." †Included under "Combined states." Compiled by U. S. Bureau of Mines.

Foreign Market And Export News

Sees Chance for America in French Market

Unless the British coal strike is soon ended, "American gas and steam coals can be sold in France under a c. i. f. arrangement at the ports of Marseilles, Bordeaux, Havre and Rouen," according to Commercial Attaché Chester Lloyd Jones, Paris.

Cabling from France a few days ago, Mr. Jones summarized the present coal situation in France as follows:

"August imports of coal, coke, and briquets were 1,823,000 metric tons, including a small quantity from the United States.

"The continuation of the British strike is pushing French production to the maximum and the present output is estimated to be a new daily record which, however, is unable to satisfy other demands than those of the usual clients, while importers are making inquiries for American fuels but reluctant to place contracts because of the demand for cash on loading.

"Belgian stocks are exhausted and Germany is unable to fill orders on hand.

"The deficit of French industrial and domestic fuels is increasing; prices are firm with rising tendency although metallurgists are benefiting from the Franco-German coke delivery agreement at prices approximately 30 fr. a ton below previous level. French industrial stocks are nonexistent, domestic fuel supply meager with price increases expected."

More Coal for Brazil

A steady increase in Brazilian coal imports is predicted by well-informed importers and distributors at Rio Janeiro. Steam coal, they say, will be more in demand because of the growth of navigation and railroad communications; gas coal will be needed in increasing quantities as a result of the rapid growth of cities. Although Brazilian cities are almost exclusively illuminated by electricity, gas is constantly growing in importance for other domestic uses such as cooking and water heating.

Coal for use in other lines of industry is not considered practical due to its high delivered cost, so that what development takes place in the siderurgical industry will result from the use of electricity or charcoal. The experiments made during the past three years at the blast furnaces and rolling mills of the Cia. Siderurgica Bolgo Minoira have proved that the use of charcoal is feasible and economical, while the quality of the steel produced is reported as being of the best.

Mills are all going in for the employment of electrical energy with a very small number of special types using fuel oil. However, the use of fuel oil is limited to the urban districts, due

to the absence of proper transportation facilities to economically supply fuel oil to the interior.

Normalcy Hits Belgium

Brussels, Belgium, Sept. 8.—The process of a return to normalcy in the Belgian coal markets appears close to completion. During the past week, competition in the export trade became keener and a number of orders were diverted to Holland and Germany by French buyers. Shipments from this country now are closely regulated.

The home market is active, but not panicky. Sized bituminous coals suitable for household consumption are steadier and slower, but practically no spot anthracitic grades are available. Coking smalls and duffs for cement-burning lead the industrial field. Duffs for the brick-kilns still move readily, but the end of the heavy demand from that source is in sight.

Coke prices are nominally 210 @ 215 fr., but 220 fr. have been paid for spot deliveries.

Prices for September deliveries of coal to the Belgian State Rys. have been announced as follows: Smalls, 100 @ 102 fr.; briquets, 150 fr., subject to adjustment for ash content.

During July, Belgium imported 634,115 metric tons of coal and exported 602,172 tons. Coke imports for the month were 217,895 tons; exports, 56,961 tons. Patent fuel imports totaled 17,790 tons; exports, 76,942 tons.

Saar Output Declines

The French domianal coal mines of the Saar produced 6,702,824 metric tons the first half of 1926, compared with 6,806,587 tons the first half of 1925. Coal sales during the first half of this year reached 5,871,688 tons. The net production of the Saar coal mines in June was 1,094,252 tons, compared with 1,054,830 tons in May, the latter being the lowest monthly production during the half-year.

Export Clearances, Week Ended Sept. 30

FROM HAMPTON ROADS	
For United Kingdom:	
Amer. Str. Suremico.....	4,042
Br. Str. Jersey Moor.....	6,408
Br. Str. Persian Prince.....	7,558
Br. Str. Cilurnum.....	4,590
Br. Str. Barrington Court.....	7,268
Ital. Str. Arsa.....	7,325
Br. Str. Dunstaffnage.....	6,841
Br. Str. Victorian Transport.....	7,218
Span. Str. Guetaria.....	4,690
Br. Str. American Transport.....	7,534
Br. Str. Homecliffe.....	6,697
Br. Str. Eastville.....	5,794
Du. Str. Aalsum.....	8,334
Br. Str. Spilsby.....	5,563
Br. Str. Domingo de Larrinaga.....	5,526
Br. Str. Sandgate.....	5,537
Ital. Str. Emanuele Accame.....	11,290
Br. Str. Molton.....	4,679
Br. Str. Elswick Park.....	6,639
Br. Str. Quebec City.....	7,144
Swed. Str. Sydlund.....	9,019
Du. Str. Sassenhem.....	2,710
Br. Str. Blairdevon.....	5,010
Span. Str. Fernando.....	5,843
Nor. Str. Earle.....	7,215
Du. Str. Zwarte Zee.....	5,310

For England:	
Br. Str. Firpark, for London.....	2,719
Du. Str. Hillegon, for Dover.....	2,804
Br. Str. Glenbridge, for Mersey.....	5,777
Dr. Str. Alphard, for Mersey.....	5,122
Dan. Str. Kronborg, for Mersey.....	4,885
Br. Str. Tullochmoor, for Plymouth.....	3,422
Br. Str. Napierian, for London.....	2,293
For Italy:	
Ital. Str. Adamello, for Portovecchio di Frombino.....	7,954
For Scotland:	
Amer. Str. Sudawsonco, for Dundee.....	4,096
For Brazil:	
Br. Str. Larpool, for Rio de Janeiro.....	5,670
For Spain:	
Span. Str. Cabo Tortosa, for Malaga.....	4,016

FROM BALTIMORE

For England:	
Br. Str. Derwent River, for Queens-town, Ireland, for orders to Eng-land.....	7,059
Br. Str. Missouri for Birkenhead, England.....	6,281
Br. Str. Dalblair, for Queenstown, Ireland, for orders.....	7,303
Span. Str. Altobizbar Mendi, for Queenstown, Ireland, for orders.....	7,529
Br. Str. Salmonpool, for Queens-town, Ireland, for orders.....	7,355
Br. Str. Navarino, for Queenstown, Ireland, for orders.....	7,257
Br. Str. Wheatmore, for Queenstown, Ireland, for orders.....	7,016
Ital. Str. Ansaldo San Giorgio Quarto, for Tyne.....	6,329
Br. Str. Grellwen, for Queenstown, Ireland, for orders.....	7,224
Br. Str. Ruperra, for Queenstown, Ireland, for orders.....	7,370
Br. Str. Alness, for Queenstown, Ireland, for orders.....	5,804
Span. Str. Zaballida, for Queens-town, Ireland, for orders.....	4,487
Gr. Str. Ithaki, for Lands End, for orders.....	5,589
J. S. Str. Dubravaka, for Queens-town, Ireland, for orders.....	5,539
Br. Str. Radnor, for Queenstown, Ireland, for orders.....	5,534
For Wales:	
Br. Str. Wilstor, for Barry, for orders.....	4,562
For Gibraltar:	
Am. Str. Carencio.....	3,277
For Uruguay:	
Br. Str. Novington, for Frey Bentos.....	4,812
For Italy:	
Ital. Str. Valverde, for Civita Vecchia.....	6,022

FROM PHILADELPHIA

For United Kingdom:	
Br. Str. Slavic Prince.....	—
Br. Str. Sheaf Crest.....	—
Br. Str. Bournemouth.....	—
For Brazil:	
Br. Str. Trelyon, for Rio de Janeiro..	—
For Jamaica:	
Nor. Str. Jose.....	—
For Italy:	
Ital. Str. Maria Rosa, for Genoa....	—

Hampton Roads Coal Dumpings*

	(In Gross Tons)	Sept. 23	Sept. 30
N. & W. Piers, Lamberts Pt.:			
Tons dumped for week.....	264,881	264,849	
Virginian Piers, Sewalls Pt.:			
Tons dumped for week.....	164,492	173,381	
C. & O. Piers, Newport News:			
Tons dumped for week.....	206,999	209,613	

* Data on cars on hand, tonnage on hand and tonnage waiting withheld due to shippers' protest.

Pier and Bunker Prices, Gross Tons

PIERS		Sept. 23, 1926	Sept. 30, 1926†
Pool 1, New York....	\$5.25@5.60	\$5.50@5.75	
Pool 9, New York....	5.00@ 5.15	5.00@ 5.20	
Pool 10, New York....	4.95@ 5.15	4.70@ 5.00	
Pool 11, New York....	4.40@ 4.50	4.60@ 4.75	
Pool 9, Philadelphia..	5.00@ 5.25	5.10@ 5.30	
Pool 10, Philadelphia..	4.70@ 4.90	4.80@ 5.00	
Pool 11, Philadelphia..	4.40@ 4.60	4.50@ 4.70	
Pool 1, Hamp. Roads..	5.75@ 5.85	6.25@ 6.50	
Pool 2, Hamp. Roads..	5.50@ 5.60	5.75@ 6.00	
Pool 3, Hamp. Roads..	4.75	5.25@ 5.40	
Pools 5-6-7, Hamp. Rds.	5.00@ 5.15	5.50@ 6.00	
BUNKERS			
Pool 1, New York....	\$5.75@5.85	\$5.75@5.80	
Pool 9, New York....	5.35@ 5.50	5.25@ 5.45	
Pool 10, New York....	5.15@ 5.40	4.95@ 5.25	
Pool 11, New York....	4.65@ 4.75	4.85@ 5.00	
Pool 9, Philadelphia..	5.25@ 5.50	5.35@ 5.50	
Pool 10, Philadelphia..	4.95@ 5.15	5.05@ 5.25	
Pool 11, Philadelphia..	4.75@ 5.05	4.75@ 4.95	
Pool 1, Hamp. Roads..	5.85	6.25@ 6.50	
Pool 2, Hamp. Roads..	5.60	5.75@ 6.00	
Pools 5-6-7, Hamp. Rds.	5.15	5.50@ 6.00	

† Advances over previous week shown in heavy type; declines in italics.

Coming Meetings

American Management Association. Annual meeting, Oct. 11-13, at Hotel Statler, Cleveland, Ohio. Managing director, W. J. Donald, 20 Vesey St., New York City.

Kanawha Coal Operators' Association. Annual meeting Oct. 21, Charleston, West Va. Secretary, D. C. Kennedy, Charleston, West Va.

Canadian Institute of Mining and Metallurgy. Eighth annual western meeting, held jointly with the northwest section of the American Institute of Mining and Metallurgical Engineers, second week in October, Spokane, Wash., and Cranbrook, B. C. Secretary, British Columbia Division, H. Mortimer-Lamb, Birks Bldg., Vancouver, B. C.

Illinois Coal Traffic Bureau. Annual meeting Oct. 28, Fisher Bldg., Chicago, Ill. Traffic Manager, W. Y. Wildman, Fisher Bldg., Chicago, Ill.

National Safety Council. Oct. 25-29, at Detroit, Mich. Managing director, W. H. Cameron, 108 East Ohio St., Chicago, Ill.

National Conference of Business Paper Editors. Annual convention at Hotel Astor, New York City, Nov. 8-10. Secretary, D. G. Woolf, 334 Fourth Ave., New York City.

Illinois Mining Institute. Annual meeting, Nov. 12 and 13 at Harrisburg, Ill. Edward Coulehan, superintendent, Saline County Coal Corp., Harrisburg, Ill., chairman of committee on arrangements.

National Industrial Traffic League. Commodore Hotel, New York City, Nov. 17 and 18. Executive secretary, J. W. Beek, Chicago, Ill.

American Welding Society. Fall meeting Nov. 17-19, Buffalo, N. Y. Secretary, M. M. Kelly, 29 W. 39th St., New York City.

American Society of Mechanical Engineers. Annual meeting, Engineering Societies Building, 29 W. 39th St., New York City, Dec. 6-9. Secretary, Calvin W. Rice, 29 W. 39th St., New York City.

Coal Mining Institute of America. Annual meeting, Chamber of Commerce, Pittsburgh, Pa., Dec. 8, 9 and 10. Secretary, H. D. Mason, Jr., Box 604, Ebensburg, Pa.

New Companies

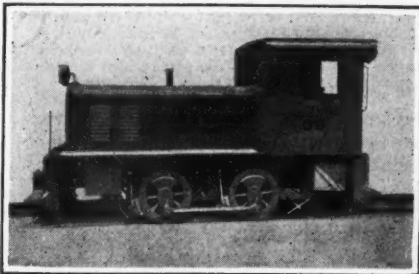
A charter has been granted to the Sulphur Creek Coal Co. of Matewan, Mingo County, W. Va., which was organized to acquire, lease and mine coal. The principal works are at Matewan and the capital stock issued is \$10,000. The incorporators are George W. Stultz, K. G. Stultz and C. D. Stultz, all of Huntington, and A. G. Simpkins and Ed Simpkins, both of Matewan, W. Va.

The Caney Creek Coal Co., Madisonville, Ky., with \$10,000 capital, has been incorporated by Joseph L. Hughett, Maude Hughett and John Hughett.

New Equipment

Gasoline Mine Locomotives Improved

Announcement has recently been made by the Vulcan Iron Works, of Wilkes-Barre, Pa., that it is now prepared to furnish its gasoline locomotives



Elliptic Spring 8-Ton Machine

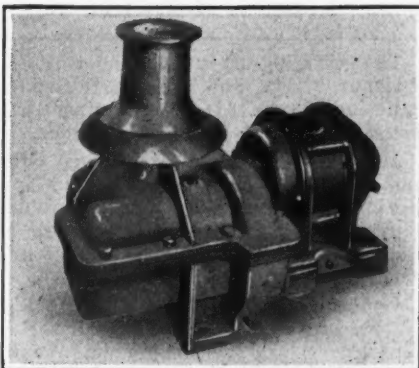
This shows a locomotive intended for use on the surface. Weight on the journals is equalized so that the machine can traverse inequalities in the track without difficulty.

in all sizes from 8 tons up equipped with elliptic springs and cross-equalizers, giving three-point suspension of the chassis. With this design derailment is a rare occurrence inasmuch as the weight of the locomotive is always equalized on all the journals regardless of unevenness or irregularities in the track. Three-point suspension is standard practice on all steam locomotives.

Car Spotter Saves Labor

There are many uses around a mine especially at the tippie tracks and other sidings where railroad cars have to be spotted, for a small, self-contained and compact motor-driven capstan. During the stormy days of the winter months when the cars are hard to move because of the packing in the journal boxes stiffening or snow and ice on the tracks, other means of moving cars than by man-power is an economical addition to the mine equipment.

The H. W. Caldwell & Son Co. of Chicago, Ill., announce two sizes, No.



Has a Wide Working Range

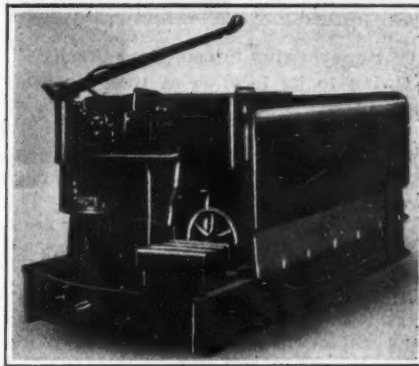
Many jobs can be found for this capstan because of its 360-deg. working radius. It is built in two sizes adapted to moving from one to six cars at a time.

1 and No. 2, of the car spotter shown in the accompanying illustration. The former has a speed of 40 to 60 ft. per minute when moving, one, two, or three cars; the latter size will move three to six cars at a speed of from 26 to 42 ft. per minute. Sturdy construction, good material, automatic oiling and a reliable motor admirably adapt this car spotter to the work for which it is designed.

Machine "Mudites" Mine Surfaces

For several years the coal-dust explosion hazard has been receiving close attention from the coal industry. Sprinkling was the first preventive measure to be seriously considered and its development was rapid as long as compressed air was being used, as the same pipe line would serve for both air and water. With the increasing use of electricity in the mines, however, pipe lines for sprinkling became expensive to install and maintain.

Muditing as a means of allaying dust was developed in the West and the



Control End of Mudite Machine

The controls are simple and accessible and are located within easy reach of the operator. The discharge nozzle is on the opposite end. It throws a spray of mud that effectively coats all the surfaces of the passage treated.

Ogden Iron Works, Ogden, Utah, has recently developed the mudite machine shown in the accompanying illustration. In addition to its use as a dust explosion preventative it is claimed that a coating of mud stops disintegration of all coal that has been treated. Such a coating should be from $\frac{1}{8}$ to 2 in. thick.

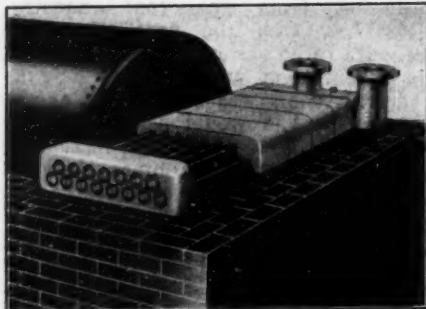
On this machine the mixture tank is of approximately 650 gal. capacity, and is provided with a well, constructed of perforated screen plate, to prevent large hard particles from getting into the valve or pump. Arms mounted on a shaft running longitudinally through the tank are so arranged that the mixture is thoroughly agitated and kept in continuous circulation from end to end.

This machine, it is claimed, will cover the roof, floor, and sides of the entries and rooms treated so that all the coal dust that has accumulated is literally

entrapped and buried in a solution of inert matter, that is forced through the spraying nozzle with sufficient pressure to cause it to find its way into all cracks and crevices. Its work is thus thorough and effective.

Simple Type Superheater for Return-Tubular Boilers

A simple type of superheater, designed for use with horizontal return-tubular boilers and set in the position usually occupied by the rear arch, has been developed by the Power Plant Equipment Co., of Kansas City, Mo. The superheating surface is made up of straight tubes of seamless drawn steel, open at both ends and terminating in heavy header manifolds having removable plugs opposite each tube opening. The steam connections may be placed at opposite corners or both at the same end, as shown in the accompanying illustration. The tube surface is inclosed



Superheater Forms Rear Arch

Owing to its location at the rear away from the high furnace temperatures it can be applied to boilers using any kind of fuel.

by cast-iron cover plates which drop into place and may be covered with firebrick and insulating material. The illustration shows the superheater complete with cover plates placed in position at the rear of a return-tubular boiler.

It will be seen that the superheater may be installed in any existing plant even though there are several boilers in one battery setting.

Motor and Control Increase Safety

An explosion-proof direct-current motor and control, designed primarily for service in coal mines, in which the

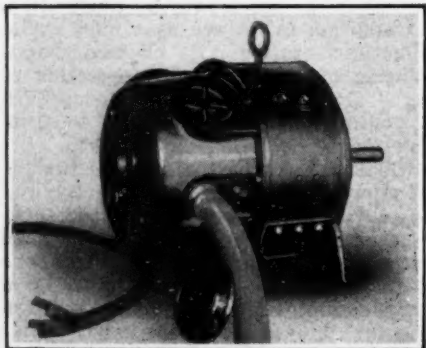


Fig. 1—Totally Inclosed

This machine has been designed and built to make operation safe in dangerous mixtures of gas and mine air. It is totally inclosed yet easy of access for inspection or repair.

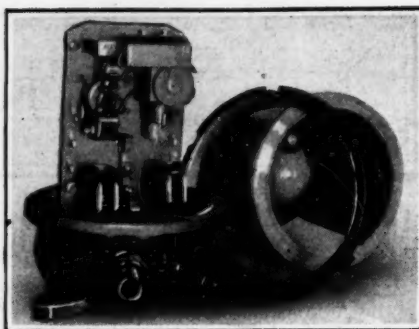


Fig. 2—Not to Be the "Weak Link"

This control, like the motor with which it is intended to operate has the approval of the U. S. Bureau of Mines for use as permissible equipment where conditions make explosion-proof apparatus necessary.

presence of gas or coal dust makes the use of electrical equipment of special construction essential to safe operation, has been announced by the Westinghouse Electric & Mfg. Co. Designed particularly for small pumps, this motor which develops 5 hp. at 1,150 r.p.m. can be used for many other applications.

This motor is of the totally-inclosed type, the brackets being provided with covers which can be easily removed to facilitate inspection and brush adjustment or replacement. These covers are also so arranged that they may be sealed to the brackets in order to prevent removal by unauthorized persons. All connections between the motor leads and the power supply are made inside of the motor frame. The conductor cable is brought out through a special brass stuffing box which is packed with asbestos twine, forming an explosion proof seal, and also affording protection to the cable.

The controller is of the magnetic push button type, inclosed in a strong explosion-proof case made in two sections. The panel on which the contactor is mounted is firmly fastened to the lower section and the upper section fits over this panel and is fastened down by means of a bronze clamping ring. This method of construction eliminates entirely the use of bolts or screws.

This 5 hp. motor and control has been developed to meet the U. S. Bureau of Mines requirements for electrical equipment designed for use in gaseous mines and has successfully passed its tests.

Trade Literature

The Mine Safety Appliances Co., Pittsburgh, Pa., has issued a four-page bulletin, No. 161, illustrating and describing its M-S-A Self Rescuer.

Jenkins Automatic Equalizing Stop and Check Valves. Jenkins Bros., New York City. Form 107. Four-page folder illustrating and describing the use of these valves for boiler safety and efficiency.

General Electric Co., Schenectady, N. Y., has issued a leaflet, GEA-71A, illustrating and describing its Wound Rotor Induction Motors, and a four-page folder, GEA-38 (superseding 68,100C) illustrating and describing its Direct-Current Crane and Hoist Motors, type CO-1820.

Recent Patents

Lamp Holder for Caps; 1,588,472. George S. Clark, Portsmouth, Ohio. June 15, 1926. Filed April 26, 1924; serial No. 709,268.

Skip Hoist; 1,588,994. Alvin C. Rasmussen, Indianapolis, Ind., assignor to Insley Mfg. Co., Indianapolis, Ind. June 15, 1926. Filed Mar. 2, 1925; serial No. 12,537.

Process for Treating Carbonaceous Materials; 1,589,022. Walter E. Trent, Washington, D. C. June 15, 1926. Filed Sept. 27, 1924; serial No. 740,384.

Electric Blasting Cap; 1,590,364. H. L. Grant, Tamaqua, Penn., assignor to Atlas Powder Co., Wilmington, Del. June 29, 1926. Original application filed July 22, 1925; serial No. 45,327. Divided and this application filed Dec. 7, 1925; serial No. 73,638.

Mining Machine; 1,590,585. Jacob M. London, Brookville, Penn., assignor to Sullivan Machinery Co., Chicago, Ill. June 29, 1926. Filed Oct. 30, 1915; serial No. 58,889. Renewed Sept. 22, 1924.

Coal-Cutting Chain; 1,590,821. Frank J. Oakes, Indianapolis, Ind., assignor to Link-Belt Co., Chicago, Ill. June 29, 1926. Filed June 27, 1922; serial No. 571,218.

Differential Mine-Car Axle; 1,590,859. Wm. L. Scribner, Canton, Ohio, assignor to The Timken Roller Bearing Co., Canton, Ohio. June 29, 1926. Filed Apr. 1, 1926; serial No. 99,058.

Process of Coking Coal; 1,593,208. Harry H. Culmer, Chicago, Ill. July 20, 1926. Filed Jan. 19, 1920; serial No. 352,309.

Process for the Low and Medium Temperature Carbonization of Coal, etc.; 1,593,333. James R. Garrow, Wimbledon, London, England. July 20, 1926. Filed April 30, 1921; serial No. 465,712.

Apparatus for Carbonizing Coal; 1,593,448. Charles Hayes, Paris, France. July 20, 1926. Filed May 22, 1926; serial No. 110,947.

Coal Drill; 1,593,586. William R. Meredith, Eldorado, Ill. July 27, 1926. Filed May 19, 1924; serial No. 714,451.

Carbonization of Coal; 1,593,697. Stewart R. Illingworth, Brynffedwen, Radyr, Wales, assignor to the Illingworth Carbonization Co., Ltd., Manchester, England. July 27, 1926. Filed May 22, 1926; serial No. 111,045.

Squirrel-Cage Motor; 1,594,205. Thomas P. Kirkpatrick, Wilkesburg, Pa., assignor to Westinghouse Electric & Mfg. Co., E. Pittsburgh, Pa. July 27, 1926. Filed Oct. 24, 1922; serial No. 596,590.

Miner's Incandescent Safety Lamp; 1,594,250. Louis E. F. Ferrette, Paris, France. July 27, 1926. Filed July 28, 1923; serial No. 654,434.

Improved Friction Clutch on Mining Machine; 1,594,551. Charles B. Officer, Winnetka, Ill., assignor to the Sullivan Machinery Co., Chicago, Ill. Aug. 3, 1926. Filed April 30, 1918; serial No. 231,698. Renewed Jan. 13, 1925.

Mine Car; 1,593,091. Vigilio Mattivi, Rapson, Colo. July 20, 1926. Filed Oct. 13, 1925; serial No. 62,315.